A CRITICAL INVESTIGATION OF PROFESSIONALISM IN QUANTITY SURVEYING

by

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ABSTRACT

The research study was an investigation of the ideology of professionalism in Quantity Surveying. The premise of the study was that professionalism is an occupational power strategy used, in conjunction with the characteristics of profession, to exercise control over recruitment and client behaviour in the market place. The attitudinal aspects of professionalism were explored with respect to the major dimensions of Belief in Professional Association as a Major Reference, Self Regulation, Professional Autonomy, Vocation and Public Service. The first three dimensions were considered aspects of occupational power. The study used a framework derived from historical, individual, organisational and occupational perspectives.

Data were gathered by survey questionnaire from qualified quantity surveyors (N=449) who were members of the Royal Institution of Chartered Surveyors or the Institute of Quantity Surveyors. The study was undertaken in 1981/82 just prior to the amalgamation of the two institutes in 1982/83. Three variable sets provided the research paradigm - Individual, Organisational and Occupational. Achievement Motivation and Interpersonal Variables were employed to explore the Individual perspective. Major role variables of Task, Degree of Structuring and Climate explored the organisational perspective by sector of employment and hierarchical rank. The Occupational perspective was investigated using literary evidence and results from the individual and organisational levels of analysis.

On the basis of these data the major finding was that Quantity Surveying is a highly specialised occupation, but <u>not</u> a profession.

CHAPTER 1

INTRODUCTION

Introduction

The impetus for the present study came from the author's own experiences in Quantity Surveying. The study further developed with a growing interest in the effects of organisational and occupational influences on individuals and the consequences for occupational development in the social structure. Pilot study work was commenced in 1979/80 and the full study was undertaken in 1981/82, just prior to the amalgamation, in 1982/83, of the Institute of Quantity Surveyors with the Royal Institution of Chartered Surveyors.

Major objectives

The major objectives of the study are:

i) To explore issues surrounding the ideology of professionalism in Quantity Surveying within an historical, sociological and managerial framework.

ii) To use an individual, organisational and occupational perspective to develop a broad theoretical framework to undertake the study.

iii) To reach conclusions about the occupational standing of Quantity Surveying within this framework.

iv) To reach conclusions about the effects of individual and organisational factors on professionalism as an occupational power strategy.

Thesis structure

The thesis is structured in the following manner:

Chapter 2 deals with the historical development of Quantity Surveying up to the time of the amalgamation of the IQS and RICS. Other issues explored include the training, recruitment and education of individuals. The organisational setting of occupational practice is also explored together with the "professional culture" of Quantity Surveying.

Chapter 3 provides the sociological perspective on professions, professionalisation and professionalism.

It includes differing models for exploring occupational power, control and the relationship between the client and practitioner. It also explores issues surrounding professional privilege.

Chapter 4 provides the organisational perspective. Issues raised include the effects of organisational structure, climate and size on individuals together with the major dimensions of technology, power and the environment.

Chapter 5 explores the individual perspective and concentrates on achievement motivation theory and interpersonal relations.

Chapter 6 synthesises the literature survey into a research paradigm.

Chapter 7 sets out the methodology for exploring the research paradigm.

Chapter 8 presents the results of the study.

Chapter 9 provides an analysis and discussion on the results within the context of the theoretical framework discussed in the literature survey together with other findings that have emerged from the study.

Chapter 10 presents the conclusions of the study in terms of the research paradigm and the individual, organisational and occupational perspectives of the theoretical framework.

CHAPTER 2

THE DEVELOPMENT AND ORGANISATION OF QUANTITY SURVEYING AS AN OCCUPATION

INTRODUCTION

Quantity Surveying, as a specialism, is inseparably linked with the development of the Surveying Profession as a whole. This is primarily due to the dominance of the Royal Institution of Chartered Surveyors (RICS) as the main institutional body to represent the interests of Quantity Surveying and other surveying specialisms. Quantity surveyors were, until recently, also represented by the Institute of Quantity Surveyors.(IQS). However, the two professional associations amalgamated in 1983. NEDO (1978), in their study of the resources of the construction industry, indicated the relative distribution of professionals by association. The figures are presented in Table 1

Quantity Surveying is explored under the following section headings.

The Structure of the Surveying Profession
Quantity Surveying
The Development of Quantity Surveying
The Professional Associations
Education and Training
Quantity Surveying Education and Training
The Training Institutions
Professionalism and the Claims to Professional Status
Quantity Surveyors in Organisations
Client Organisations
Internal Debate within Quantity Surveying
Empirical Evidence on Individuals in Quantity Surveying

The chapter plan reflects areas considered important for establishing and exploring the status of Quantity Surveying as an occupation or profession. As the thesis is concerned with intra occupational dynamics, much of the evidence presented in the following pages is discussed in chronological order. This procedure is adopted to reflect the development in thinking of the surveying and specialist 'collectivity'. The terms 'profession' and 'professional' are used throughout the present chapter because of their customary use in the occupation of Quantity Surveying. However, they are not expressions of an assumed status of the occupation. That status is not discussed until the evidence presented in the following pages is critically

Table 1 Main building and Civil Engineering professions: numbers and Distribution by type of employment

Source: NEDO (1978)

	Quantity Surveyors (RICS)	Quantity Surveyors (IQS)	Civil Engineers (ICE)	Architects (RIBA)	Building Services Engineers (CIBS)	Structural Engineers (IStructE)
Corporate membership in UK[1]	9280	4430	35 635	21 131	6888	7285
Percentage employment[2]						
Private practice and self employment	59	na	18	48	20	51
Contractors and other companies	7	majority	22	5	45	19
Local authorities	19	na	33	31	12	18[3]
Central government and public corporations	9	na	23	13	18	7
Education and other	6	na	4	3	5	5
Total	100	100	100	100	100	100

1. For dates between December 1976 and June 1977
2. For same dates, except ICE 1976, IStructE 1975, and CIBS for IHVE corporate members in 1973 (IHVE joined with others to form CIBS)
3. Includes further education teaching

The above table presents corporate membership only, it does not present student, probationer and licentiate members.

In addition to the above main institutes there are others whose members may be employed in construction, eg., mechanical and electrical institutes employed in building services. Furthermore 5-10% of practicing Architects are registered with ARCUK but are not members of the RIBA.

appraised within the context of a management and sociological framework.

The quantity surveyor, in his normal working role, forms part of a design team facing a potentially complex construction process. Figure1 places the quantity surveyor within the context of the numerous personal relationships encountered and the complexity of the building process as a whole.

THE STRUCTURE OF THE SURVEYING PROFESSION

The structure of the surveying profession is adequately described by the Monopolies and Mergers Commission (HMSO 1977). It concluded that this profession covers a wide diversity of occupations. However, it noted that the common element between them was their concern with some aspect of the measurement, management, development or valuation of land, property or buildings. The Commission commented that many of the surveying functions from which the profession grew were conducted by stewards, architects and lawyers. The growth of the profession is,therefore,an aspect of the developing trend towards specialisation especially evident in the 19th Century.

Denman (1976) supported this view when he stated,

> "...The surveyor's profession is the land management profession. Its several parts fit together to that end: the land surveyors to measure and tell us what we have got; the land managers and the market men to advise on how to arrange and dispose of the land assets; and the quantity surveyors to calculate the outcome of dispositions made". (p. 102).

The Future of the Profession Report (RICS 1970) indicated the profession was probably structured on three levels of activity. These were:-

The Professional level, comprising individuals of high educational standard who accept full responsibility for their own decisions and those of their subordinates.

The Technical level, comprising individuals who are subordinate to professionals but have some formal technical training and,

PHASE	PARTICIPANTS	ACTIVITIES	KEY DECISION
Conceptual	Client or developer Land Owner Valuation Surveyor Lawyers Financiers IDC, ODP Officials Town and Country Planners Architect or Civil Engineer Quantity Surveyor Building Services Engineer	Site Identification Conception of Demand Finance Source Identification Outline Proposals and Viability Decision Approvals: IDC, ODP, Outline planning Site Acquisition Cost Planning Design Brief	Preliminary Viability Type of Contract Issue of Design Brief
Design	Architect or Civil Engineer Struct. Engineer Building Services Engineer Quantity Surveyor Other design Professionals Specialist Contrac Contractor Town and Country Planners Building Regulation Officers Fire Authority Officers Financier Client	Scheme Design Specialist Contractor Design Detailed Design Civil Eng: Architect Building Services Engineer Struct: Eng: Quantity Surveyor Other Specialists Detailed Planning Permission and Bye-Law Approval Confirmation of Finance and Viability	Final Viability Acceptance
Contract Documencation	Quantity Surveyor Architect or Civil Engineer Specialist Contractor Main Contractor Lawyers Financiers Client Trade Unions	Contract Documentation Preparation of Tender Letting Specialist Contracts Letting Main Contract	Commitment of Long Term Finance Decision to Construct
Construction on Site	Main Contractor Architect or Civil Engineer Quantity Surveyor Building Services Engineer Struct: Engineer Specialist Contractor Other Sub - Contractors Contract Management Technical and Clerical Staff Tradesmen Unskilled and Semi-Skilled operative Off- site support staff Materials producers Component Manufacturers Trade Unions Builder's Merchants Plant Manufacturers Building Inspector Client Lawyers	Contract Administration and Site Supervision Civil Eng: Architect, Quantity Surveyor Input of Materials and Components Main Contractor Man power Input Admin Staff Professional & Technical staff Clerical Staff Operatives Specialist Contractor Input As for main Contractor Sub-Contract Input As for main Contractor Plant Utilisation Construction	Acceptance and Commissioning

Figure 1 The Traditional Construction Process for New Building and Civil Engineering Works
Source: adapted from NEDO(1978: 4)

The Operative level, comprising support staff such as draughtsmen and clerks who may have a less formal training.

The above views, a blend of 'official policy', State investigation and personal inclination present a picture of a profession which although diverse, is unified through a common bond in the land. However, much of the discussion that follows presents a picture of not only tensions from, but also within a specialism. These tensions are explored when concentrating on Quantity Surveying, probably one of the most vociferous specialisms within Surveying.

QUANTITY SURVEYING

The Chartered Quantity Surveyor is defined to be,

> "...a building economist, sometimes described as a construction cost consultant. He advises building owners and Architects on probable costs of building schemes and on the cost of alternative designs. His advice enables design and construction at all stages to be controlled within pre-determined limits of expenditure. He also advises on procedures for arranging building contracts. He prepares Bills of Quantities and where appropriate negotiates contracts with builders: he also prepares forecasts of final costs and valuations for payments to the builder as work proceeds. He is responsible for the measurement and valuation of variation in the work during the contract and for the preparation and agreement of the builder's final account" (RICS 1972).

As a specialism within the Surveying profession, Quantity Surveying has had a very chequered history with the Royal Institution of Chartered Surveyors (RICS). This uneasy relationship was exemplified by the FOP Report (RICS 1970), which acknowledged that it was virtually a separate profession from the remaining surveying professions. This sentiment was further supported by the Monopolies and Mergers Commission (HMSO 1977),which stated

> "...Quantity Surveying...is best regarded as distinct from other forms of surveying" (p.4, para 11).

The RICS elaborated on this independent specialism in their case presented to the Monopolies and Mergers Commission. The distinguishing features were:-

1. The nature of the work.
   Much of the quantity surveyor's work was said to be of a largely uniform, technical character especially in the area of measurement. However, the RICS noted that it still required a high degree of skill, precision and a close constant regard for the client's interest.

2. The Clients.
   The RICS argued that clients were usually large, informed bodies, for example, local and central government and property developers, who would normally have their own salaried quantity surveyors. Furthermore, regardless of size, client bodies would normally also be advised by architects and the quantity surveyor would usually receive instructions based on this advice.

3. The relative importance of individual engagements.
   The length of time, from inception to commissioning, for construction projects meant the number of engagements for a practice would be small in any one year. Quoting general figures, the RICS indicated that for a major firm of quantity surveyors instructions for engagement could be less than 200 jobs per year and a smaller firm, of less than 5 partners, could receive less than 50.

The problem that Quantity Surveying presents to the surveying profession as a whole is also evident within Quantity Surveying itself. The historical development of Quantity Surveying has produced surveyors who are commercially oriented and are predominantly employed in contracting organisations. A split, be it artificial or real, exists between those working in private practice and those working in commercial organisations.

THE DEVELOPMENT OF QUANTITY SURVEYING

The following sections deal with the countries of England, Scotland and Ireland where the fate of the quantity surveyor and his development resulted from different impetuses.

The English Dimension

In England, Quantity Surveying had its roots in the Great Fire of London in 1666 (Thompson 1968). Because of the enormity of the fire damage, considerable restructuring in the building industry followed. During the Middle Ages the building industry had been organised on a Guild structure. However, after the Great Fire it came under increasing pressures to cope with the upsurge in construction activity. Consequently, a number of the Master craftsmen from the old Guilds became entrepreneurs during the ensuing boom. Cotemporaneously, the architects were developing their role into that of designers and coordinators of craftsmen. Architects were 'educated gentlemen' rather than artisans since the property landlords, in London, were invariably of the nobility (Higgins and Jessop 1965).

Payment for building works, by the client, was usually conducted on a materials and labour basis with payment established by physical measurement 'as complete'. The property boom placed architects under increasing pressures due to the considerable demand for design work. Consequently they began to divest themselves of their measuring function although still maintaining the cost estimating function for the client (Thompson 1968). As the building boom eased many of the less talented architects were forced to undertake supplementary work, as well as the design function, and subsequently became architect-surveyors and architect-builders.

The first claims to professional status for 'measurers' came with the publication of Venturus Manday's "Marrow of Measuring" in 1682. Manday placed the 'measurer' in the position of an independent arbiter and described him as a professional man in his own right. However, as Thompson notes, the claim was premature since two measurers existed at the time; one for the client and one for tradesmen.

By the mid 18th Century restructuring had occurred once more in the industry with the emerging pattern of thc architect operating directly for the client. The former acting as employer for various separate single trades. During this period groups of artisans employed a 'measurer' to measure the completed work and negotiate with the architect for payment. The 'measurers' invariably pressed the claims of craftsmen and as a consequence the architect began to employ his own independent 'measurer' to counteract these claims. (Higgins and Jessop 1965), Figure 2

The date from which Quantity Surveying existed as a full-time occupation is conjectural (Thompson 1968). He indicates that the architect-surveyor began to call himself quantity surveyor by the mid 18th Century. Higgins and Jessop (1965) agree, chronologically, but use the term 'measurer' to indicate a separate function of building measurement was being practiced around this period. However, Tyrrell Evans (1954), places the common use of the term 'Quantity Surveyor' around the 20th Century, although it was occasionally in use from 1859 onwards.

Further developments in the techniques of building measurement occurred with the publishing of William Hawney's "The Compleat Measurer" in 1717 and Thomas Skaife's "A key to Civil Architecture - the Universal British Builder" in 1774. During this period pre-construction estimates were beginning to be used, based on priced quantities, calculated from plans and elevations. This procedure, to produce an overall cost estimate in advance of construction, was advocated by Skaife although it was in direct opposition to the common method used at the time of estimated costs based on square area of building.

An evolutionary process was occurring in the building industry during the period between 18th to 19th Centuries especially in the roles of the participants in the construction process. Construction was becoming more commercial, with a transition away from patronage towards professionalism and specialism in the design and supervising functions. Architects began to dissociate themselves from building, surveying and measuring. This was effectively

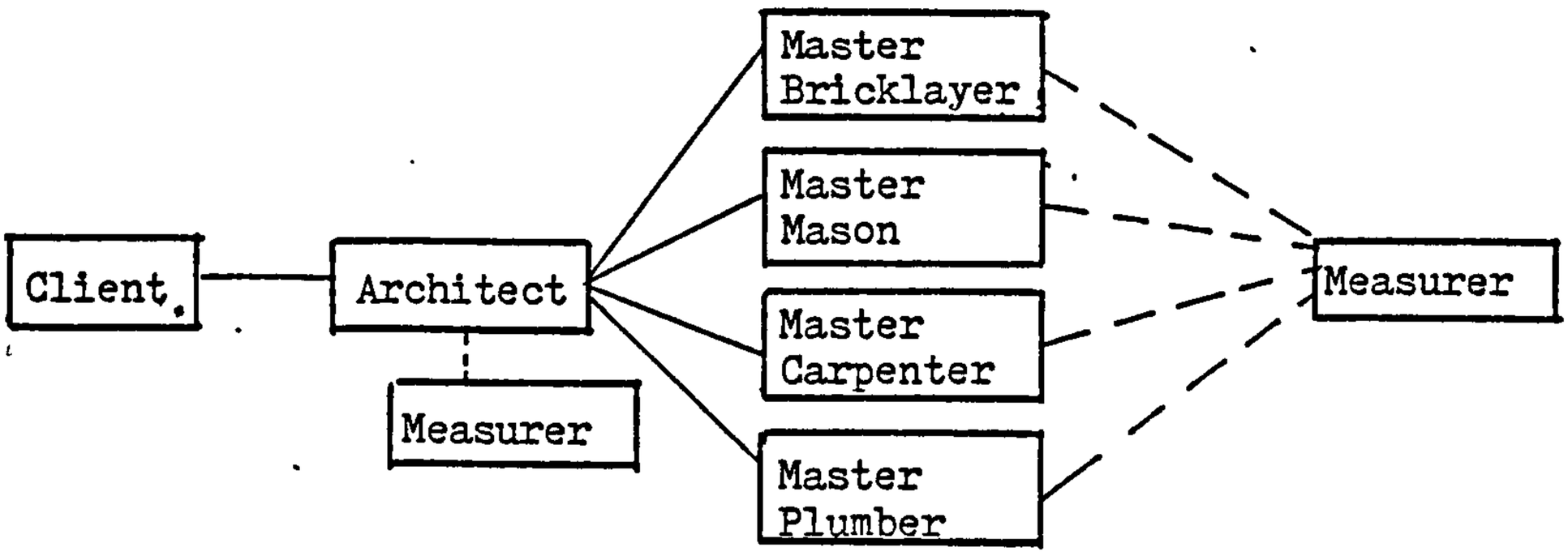

Figure 2 The Building Industry during the 18th Century
Source: Higgins and Jessop (1965:40)

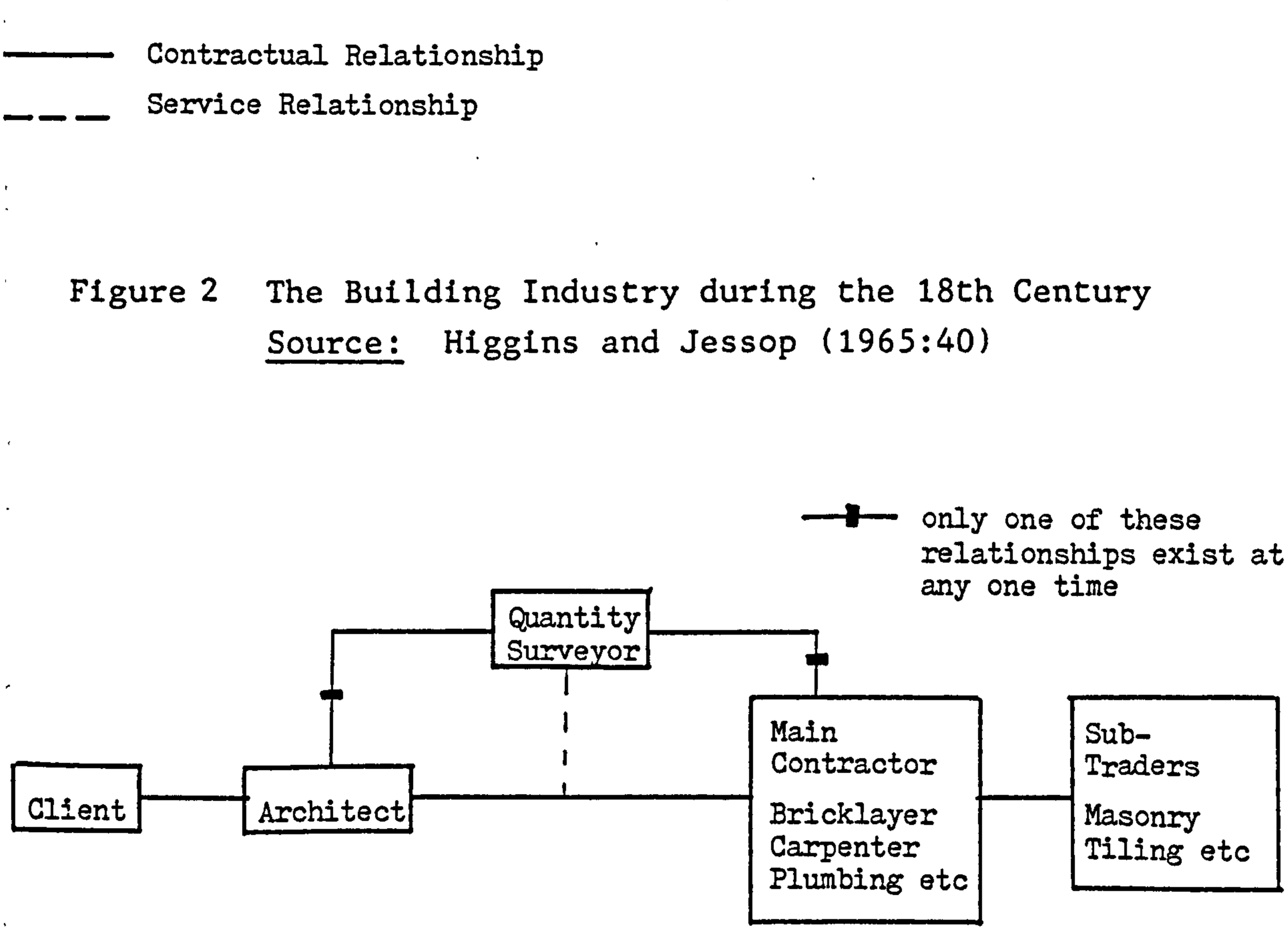

Figure 3 The Building Industry during the first half of the 19th Century
Source: Higgins and Jessop (1965:43)

establishing a status hierarchy within the building industry, since surveyors were beginning to be held in lower esteem. During this transitional period from 1770 onwards and lasting for approximately eighty years, the surveyors were also dissociating themselves from builders. However, there still remained a considerable blurring of function (Thompson 1968).

At the turn of the 18th Century the Napoleonic Wars produced the next environmental impetus for the development of Quantity Surveying (Thompson 1968, Higgins and Jessop 1965). The upsurge in barrack room construction in London produced a move towards single contractors undertaking responsibility for the whole construction process through a single contract with an architect. The rise of the Master Builder revolutionised contracting. A further developmental impetus came with the design and building of the new Houses of Parliament, eventually commissioned in 1837. The major part of the construction was let as a single contract using detailed drawings, Bills of Quantities and a preliminary cost estimate based on them. The new Houses of Parliament also gave Quantity Surveying its first public recognition in 1836 with the provision of evidence to the Parliamentary Committee on the building of the new Houses. The evidence was given by H.A. Hunt, then considered to be at the head of the new Quantity Surveying 'profession'. The measuring function had by now become highly specialised with the establishment of the Quantity Surveyor in the 1850s, Figure 3

The growing tensions between architects and quantity surveyors came to a head in the mid 1800s when the former instigated a smear campaign against the latter. The underlying reason behind the campaign was an attempt, by architects, to salvage their already flagging image. To this end they suggested the elite in Quantity Surveying were forcing many of the traditional measurers into underhand practices. Tactically the architects emphasised their design function and denigrated all non architectural functions. Their prime target was the architect-surveyor who occupied a no man's land between the traditional

measurer and the architect. This successful tactic led to the formation of the Royal Institute of British Architects in 1834. Thompson (1968) quoted an address given before a meeting of the RIBA on 2nd July 1834, excluding or expelling from membership

> "...any Fellow or Associate either for having engaged since his election in the measurement, valuation or estimation of any works undertaken or proposed to be undertaken by any building artifices, except such as are proposed to be executed or have been executed under the Members own design or directions; or for the receipt or acceptance of any pecuniary consideration or emolument from any builder or other tradesman whose works he may have been engaged to superintend; or for having any interest in or participation with any trade contract, or materials supplied at any works, the execution whereof he may be or have been engaged to superintend" (p.93).

Thompson continued in his own words to indicate the direct consequence was that,

> "...they excluded from the Architectural profession the new, skilled, specially trained quantity surveyors into whom the best of the measurers were growing. The professional future of quantity surveyors, with their manifold links with the building industry and Architecture, was thereby turned towards other surveyors, and the ultimate forging of a surveying profession" (p.93).

Thompson noted the old fashioned measurer was already a dying breed and the strategy adopted by the architects hastened their end, completed the structural change within the Architectural profession and effectively established the new occupation of Quantity Surveying.

Technological developments were having considerable effects on the building industry in tandem with the restructuring of the Architectural profession (Higgins and Jessop 1965). These mainly included the invention of Portland cement in 1825 and the use of steel. The impact of these developments caused the roles of the specialist designers and sub contractors to diverge. Furthermore, the roles of the Architect and specialist designers, as being responsible for the whole project, became very confused. This confusion was further compounded by a development in the use of nominated sub contractors by architects, Figure 4 .

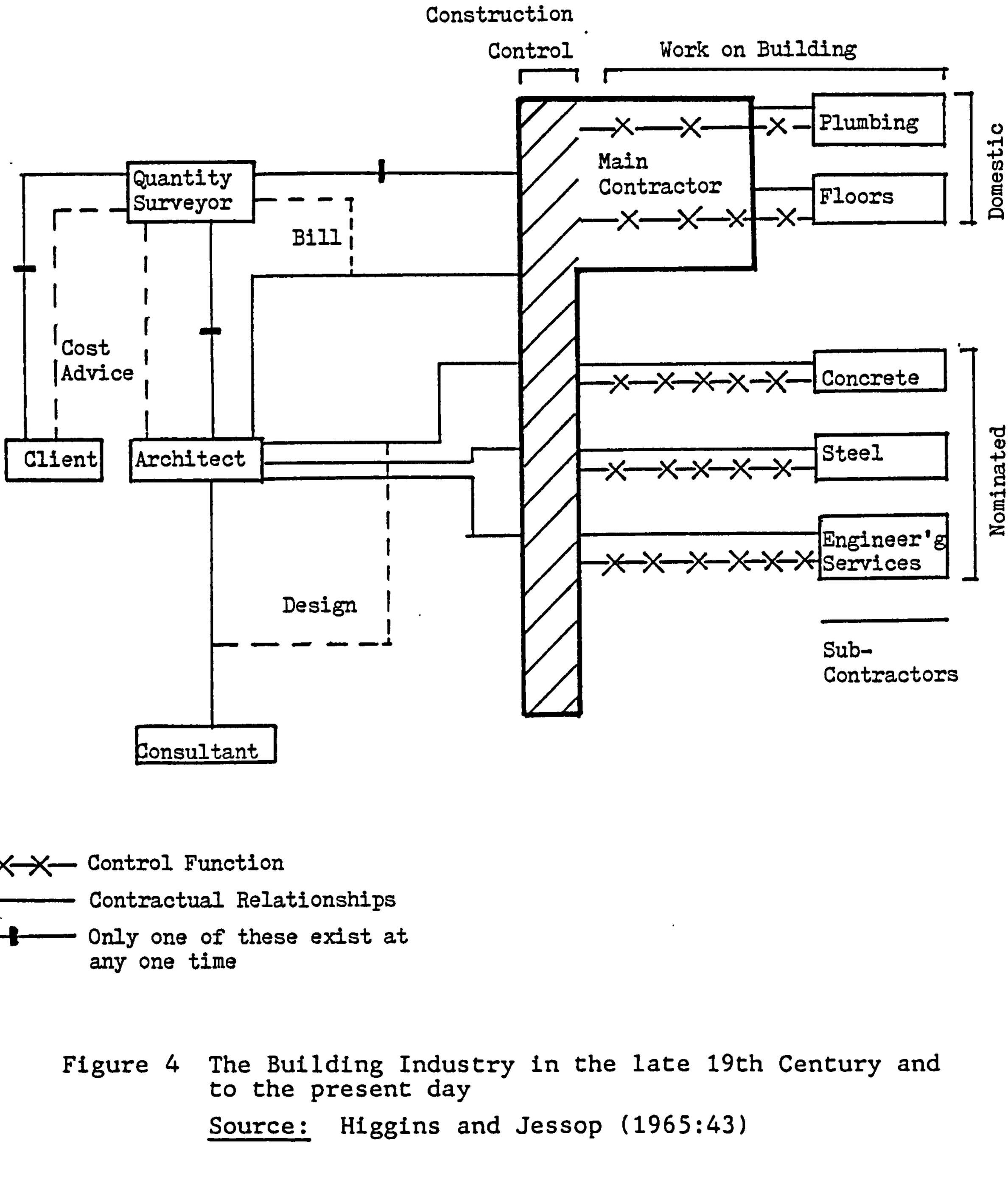

Figure 4 The Building Industry in the late 19th Century and to the present day

Source: Higgins and Jessop (1965:43)

Clients were becoming increasingly dissatisfied as the discrepancies between estimated costs and the final account became more pronounced due to increasing project complexity (Bennett 1977). Two developments in Quantity Surveying assisted with this problem. First, the development of the Bill of Quantities, in its present form, occurred during the 19th Century in the wake of construction activity associated with the Industrial Revolution. The Bill of Quantities allowed submitted tenders, from contracting organisations, to be compared against each other. Second, in the post World War Two period cost planning techniques were developed allowing the Quantity Surveyor to be involved in the economics of the design process.

The Scottish Dimension

During the 17th and 18th Centuries measuring was more organised in Scotland than in England. Measuring was often practiced by tradesmen who were members of craft guilds and chapels. Certain trades, especially Masonry, were developing standard methods of measuring quantities. Consequently, in conjunction with the responsibilities of guild membership, Scottish measurers had reputations far in excess of their English counterparts (Thompson 1968). By 1862 Quantity Surveying was well established in Scotland (Tyrrell Evans 1954).

The Scottish surveyors formed a more cohesive group in comparison to their English brethren because of their long standing connection with the municipal authorities. The craft guilds were abolished in 1847 but it remained the practice for measurers to be ordained by the City Sheriffs. The measurers developed a growing awareness of the necessity for forming their own voluntary associations to enforce standards and conduct exams. In general, the Sheriffs in the Cities of Edinburgh and Glasgow co-operated with the measurers' associations by refusing to ordain anyone failing to qualify through the societies examinations (Thompson 1968).

Measuring practices in Scotland were aligned with the organisation of the Scottish building industry in which

single trades contracts were the norm. The Scottish and English systems of measurement did not fit well together. However, a shift in the structure of the Scottish construction industry caused the Scottish surveyors to rethink their approach to English surveying practices. The increasing trend for Scottish building projects to be let under a single comprehensive contract usually meant that English contractors were employed and the Bills of Quantities prepared by English quantity surveyors. The increasing competition between Scottish and English surveyors forced the former, through their Faculty of Surveyors, to amalgamate with the RICS in 1937 (Thompson 1968).

The Irish Dimension

Measurers were in existence in Dublin and Belfast in the 1870s. However, the Irish Land Agents considered them inferior. Links were forged between the English and Irish surveyors in the late 19th and early 20th Century but an Irish surveyor was unable to practice in England and Wales unless he had passed the equivalent examinations (Thompson 1968).

THE PROFESSIONAL ASSOCIATIONS

The Royal Institution of Chartered Surveyors[1]

The Monopolies and Mergers Commission (HMSO 1977) concluded that the RICS,

> "...is the dominant professional body concerned with fees for the supply of surveyors' services. This dominance arises because of the Institution's historical prestige and the large size of its membership and the fact that the Institution's scales, or parts of them are agreed with or adopted by other professional bodies" (para 41).

The FOP Report (RICS 1970) was explicit in stating that the structure of the RICS was based on the premise that the activities mentioned in the Royal Charter constitute it to be a single profession. It is this dominant position, enjoyed by the RICS, that has caused many of the tensions, mentioned earlier, within the specialisms inherent in the

Surveying Profession. This is especially true of Quantity Surveying and has often led to power struggles within the Surveying Profession.

1 The origins

Like many professional associations the RICS has its historical foundations in social clubs. The main purpose of these clubs was to provide a forum for exchanging ideas notably without any conscious notion of forming a regulatory body. The antecedents of the RICS were in the Surveyors Club - founded in 1792, the Land Surveyors Club - founded in 1834 and the Surveyors Association - founded in 1864. The important criterion for membership of these clubs was eminence in the emerging field of surveying. The skills found among the members included the valuation of land, boundary measurement in connection with Private Bills and Quantity Surveying. Quantity Surveying was noted to be "already a distinct profession" (Monopolies and Mergers Commission HMSO 1977, p.93).[2]

The Institute of Surveyors (forerunner to the RICS) was established in 1868 (Thompson 1968). The 20 founder members were predominantly London based surveyors representing auctioneering and estate management. Thompson noted their common bond was railway work. Founding membership was again based on eminence in their chosen field. Many of the founders had served under articles to established surveyors although several had trained in their father's offices. Thompson gave an insight into the motivational forces behind the formation

> "...Surveyors, inhabiting a no man's land in the world of building and construction, were being urged to organise, firstly because they were felt to have reached professional calibre and secondly, they needed the protection, the facilities and the status, which an institution could provide" (p.137).

The RICS gained public recognition in 1878 with the passing of the Metropolis Management and Building Acts (Amendment) Act. This was the first Act to give statutory recognition to the Institute (Monopolies and Mergers Commission HMSO 1977). A Royal Charter was granted in 1881 and Royal

Patronage bestowed in 1921. The name of the Institution was changed in 1930 to the Chartered Surveyors Institution and renamed the Royal Institution of Chartered Surveyors in 1946.

The RICS took approximately seventy years from its foundation until it performed the full range of functions associated with a professional body. The prime objective during this period was surveying competence. The code of ethics for the Institution took approximately seventy years to evolve. This lengthy gestation was predominantly caused by the difficulties of enforcing standards in the operations of the property market. The first Professional Practice Committee was established in 1898-9 enabling the Institution to exercise disciplinary powers over members. During the formative years establishing a professional base preoccupied members rather than keeping a close rein on professional integrity (Thompson 1968).[3]

The Architectural profession, Thompson notes, within the boundaries of the RIBA, adopted the reverse approach and was initially concerned with integrity due to their poor professional image in the early 1800s. Thompson adds the question of competence was a more thorny issue since it involved aesthetic judgement.

2 Surveyors and Dissention

During the period 1868 to 1900 the Quantity Surveying specialism within the RICS, was the fastest growing section and became a dominant part of the Institution's membership (Thompson 1968). The recognition and status of Quantity Surveying, as a profession, was believed, by Thompson, to have come when the occupation came within the sphere of the Institution. However, dissention between the quantity surveyors and the RICS was growing and reached a head in 1903 when the Quantity Surveying Association (QSA) was formed; it was incorporated by the Board of Trade in 1904 (Tyrrell Evans 1954). Conflict erupted for two reasons. First, quantity surveyors now felt more secure in their professional standing and began to feel the RICS was no longer the Institution best suited to represent their aims.

Second, quantity surveyors were anxious to be recognised as a separate specialist profession. However, an important aim of the RICS was the unification of the Surveying Profession. To this end incorporation, by the Board of Trade, for the QSA was strongly opposed by the RICS (Thompson 1968).

Tyrrell Evans (1954) noted that the impetus for the formation of the QSA came not only from dissenting RICS members but also unattached quantity surveyors. The membership of the QSA saw it as a reforming body and not a splinter group. To this end it held qualifying examinations but did not grant titles or diplomas. Its main objectives were to standardise measurement procedures, regularise fees and increase the protection of quantity surveyors interests. In response to the formation of the QSA the RICS formed the Quantity Surveyors Committee in 1904.

The QSA amalgamated with the RICS in 1923. The newly established Quantity Surveyors Committee enjoyed considerable autonomy and was subject only to the final policy decisions of the Council of the RICS. Furthermore, amalgamation brought with it the designation Chartered Quantity Surveyor (Thompson 1968).

Further dissention broke out again in the 1930s resulting in the formation of the Institute of Quantity Surveyors (IQS). The formation of the IQS was brought about for three main reasons. First, there was internal wrangling between certain Quantity Surveying members of the RICS and the Institution itself. Second, those quantity surveyors who were employed by contracting organisations were barred from membership of the RICS and they felt they needed a corporate voice. Third, quantity surveyors desired professional respectability for their occupation (Dolan 1979, IQS 1983). Consequently the IQS was formed in 1938 and incorporated in 1941.

3 Consolidation of the Surveying Profession

a) Past amalgamations

The RICS, in the formative years, was essentially an English and Welsh association of surveyors. The

different land laws and occupational histories of the Scottish surveyors resulted in a general lack of interest, by them, in the RICS. Interest from Ireland was also one of indifference (Thompson 1968).

The Faculty of Surveyors in Scotland represented the main Institute for the protection of Quantity Surveyors interests north of the border. It was founded in 1913 through the amalgamation of the Society of Ordained Surveyors (founded in 1899 and centred in Edinburgh) and the Glasgow Institute of Measurers (founded in 1881). The RICS had established a Scottish Branch in 1897. A special dispensation was granted to senior Scottish surveyors enabling them to be elected to membership without examination. The Branch remained small and represented a narrow range of surveying interests since, in the main, the majority of Scottish practitioners found the Faculty of Surveyors to be adequate for the profession (Thompson 1968). The Faculty of Surveyors had been granted a Royal Charter which it sacrificed in its amalgamation with the RICS in 1937 (Tyrrell Evans 1954).

The links with Ireland were established in 1895 through the Irish Land Agents Committee (formerly the Irish Land Agents Society) (Thompson 1968) and amalgamation with the Irish Quantity Surveyors Association (formed in 1924) (Tyrrell Evans 1954). The Irish branch, like the Scottish, was given considerable autonomy.

b) Recent amalgamations

The first major amalgamation took place with the unification, in 1970, of the Chartered Auctioneers and Estate Agents Institute, the Chartered Land Agents Society and the RICS (Monopolies and Mergers Commission 1977). The second major amalgamation took place in 1982 when the IQS membership voted to unify with the RICS, administrative amalgamation taking place in March 1983.

The Institute of Quantity Surveyors[4]

The IQS differed in two important respects from the RICS. First, it catered for quantity surveyors only and accepted no other class of surveyor. Second, it did not discriminate between those employed in commercial organisations and those in private practice. It therefore allowed its members to undertake the Institute's examinations whilst employed in the offices of an approved commercial organisation (IQS 1980).

The majority of the founders of the IQS were from private practice but were concerned about the interests of the contractor's quantity surveyor (IQS 1983a).

Relationships between the IQS and RICS have at times been difficult. In 1948 the RICS threatened court action against the former for its use of the words 'Incorporated Quantity Surveyor'. In the event the RICS did not proceed (Lester 1983). The RICS had considered they had the sole right to use the designation and felt IQS members were attempting to pass themselves off as members of the RICS.

Public recognition for the IQS came during a High Court action in 1952. Council for the Plaintiff passed derogatory remarks about the standing of the IQS in comparison to that of the RICS. The IQS were allowed to publicly defend themselves and on consideration of the evidence the judge upheld the professional reputation of the IQS. The IQS unsuccessfully submitted a petition to the Privy Council for a Royal Charter in 1977 (Lester 1983).

The combined future of the IQS and RICS was initially given consideration in 1969. Following the Report of a joint working party it was concluded that amalgamation was not possible. However, in the long term it would be,

> "...beneficial to the Public, to the Clients served by both societies and finally to the Profession itself" (IQS 1983b p.295)

Progress towards amalgamation was slow, especially as both Societies had differing aims. At the time the IQS was only interested in liaison although the RICS (as it appeared to the officials of the IQS) was only interested in amalgamation.

Furthermore, the RICS was unlikely to accept the training of quantity surveyors in contractors' offices. By 1973 the IQS Council were of the opinion that the RICS appeared reluctant to liaise at working party level. Furthermore, RICS headquarters had instructed certain branches to refrain from conducting joint local meetings (IQS 1983b). By 1974 local RICS branches had disregarded this directive and negotiations reopened again. The IQS membership were next consulted concerning amalgamation in 1976 but pressure groups within the IQS voiced their dissent and the membership rejected amalgamation. However, only a small proportion of those eligible to vote, in both Societies, did so (Lester 1983). "Grass roots" feeling within the IQS stepped in and joint meetings were conducted once again with unification meetings taking place in 1981-2. Unification was passed by ballot in 1982 (IQS 1983b).

Other Institutions Associated with Quantity Surveying

1. The Chartered Institute of Building (CIOB)

The CIOB was formed in 1834 as the Builders Society. Membership covers a wide range of activities in contracting but a proportion of the members undertake quantity surveying functions. It was granted a Royal Charter in July 1980, eighteen months after the Institute's application (Building 1980).

2. The Faculty of Architects and Surveyors (FAS)

The FAS was founded in 1926 to serve the professions of Architecture and Surveying. The FAS amalgamated with the Institute of Registered Architects in 1974. FAS rules require that practicing Architects must be registered with the Architects Registration Council of the United Kingdom (ARCUK). The majority of surveyors are employed either as building or quantity surveyors (Monopolies and Mergers Commission HMSO 1977).

3. The Incorporated Association of Architects and Surveyors (IAAS)

The IAAS was formed in 1925 to serve the interests of architects and surveyors. IAAS rules also require that

practicing members of the architects section must be registered with ARCUK. Those practicing surveying are predominantly in the areas of building and quantity surveying (Monopolies and Mergers Commission HMSO 1977).

EDUCATION AND TRAINING

Education and training are intimately connected with the operation and structuring of a profession. The education and training of quantity surveyors is heavily influenced by the general educational and training policy of the RICS together with the policy formulated by the Quantity Surveying Division of the RICS. In view of this complexity the following discussion is structured to deal with RICS educational policy documents, non-educational policy documents and finally those statements produced by the QS Divisional Council and the IQS.

The Royal Institution of Chartered Surveyors

1. Surveying Education and the Qualifying Examinations

Surveying education has traditionally been 'learning by doing' in an office environment. The approved method has been by articled pupilage with a surveyor of established reputation. The period of training was usually of three to five years duration. This mode of training was especially prevalent for quantity surveyors from the 19th Century onwards (Thompson 1968). However, articled pupilage was expensive and time consuming and many trainee surveyors were unable to afford either. The alternative to articles was usually to seek employment as a salaried, junior, assistant in a surveyor's office undertaken with the hope of gaining balanced experience. Both methods had their drawbacks and gradually articles decreased in importance as a method of training. The RICS attitude towards training was generally one of allowing others to undertake the function and maintaining influence over what was taught through the examination system. The granting of the Royal Charter in 1881 gave the RICS prestige and moral authority over

its membership (Thompson 1968). The most important change to follow from, but not a condition of, the granting of the Charter was the establishment of qualifying examinations. Thompson noted these grew mainly from the concern for professional education. The corporate designations of Fellow and Professional Associate were initiated after the establishment of the examination system. Initially each grade had its own examination but modifications were made in 1913 with the establishment of a single final qualifying exam. Under the new system the Professional Associate became eligible after five years experience in a responsible position. The distinction between the two grades was, therefore, primarily one of length of service (Thompson 1968).

The complex structure of the Surveying Profession inevitably entailed a complicated examination structure. The Professional Education Committee in 1880 set up three divisions of proficiency examinations to cope with the structure.[5] These divisions remained until 1932 when they were restructured into four divisions.[6] Further modifications occurred during the period 1951-61 with the structure developing into five divisions.[7]

2. Post World War Two Educational Policy

The RICS, during the period after 1945, had to grapple with a number of problems in surveying education. First, the educational standards in the country as a whole were increasing. Second, the profession was facing graduate entrants and third, the Institution wanted to attract the right calibre of entrant to the profession. These problems are still of major concern for the RICS and it has yet to formulate a coherent policy to adequately deal with them.

The Watson Committee (RICS 1950) produced the first Report designed to grapple with these issues. The Committee adopted a dual approach to degree exemption. First, individuals with degrees in Estate Management from either

Cambridge or London University were eligible for immediate election to Professional Associate on fulfilment of two years' approved professional training. Second, individuals with other approved cognate degrees were given partial exemption from the Institutions examinations. Thompson (1968) concluded the net result was the inhibition of full time higher education as a means of entry. The third method of entry to the profession, the preferred method, was by approved practical training supplemented by academic study through evening classes and correspondence course.

The Wells Committee (RICS 1960) conducted a fundamental reappraisal of the education and training for the profession. It reached a number of significant conclusions:-

i) The profession had recruited individuals of a lower academic ability than desirable. Consequently a dual system of entry was established for the school leavers; the '0' level standards were raised but concessions were given, in the Institutions exams, for those with approved 'A' levels.

ii) Academic study was to shift in emphasis from the pure acquisition of facts to general principles. Practical training should be complementary and enable principles to be put into use.

iii) Surveying, in comparison to other professions, had failed to have an impact on University thought and life in general. Therefore to develop its status the Surveying Profession must become a clearly defined discipline and be fully accepted at higher educational levels.

iv) In comparison to other professions, senior members of the Surveying Profession did not contribute significantly to teaching. There were consequent repercussions for the quality of practical teaching and research.

v) The concept of the 'technologist' was introduced. He was defined as a person

> "...who is competent by virtue of his fundamental education and training to apply scientific method to the analysis and solution of technological problems, and to make his own contribution to the advancement of knowledge. He is the man entitled to full professional status in our own profession. By contrast, a technician is one who is qualified to apply existing proven techniques, or new techniques prescribed by a professional technologist, in surveying, his equivalent would be 'sub professional'" (p.5).

The RICS revised its entry standards in 1966 due to the changing national educational standards. The requirement was now in terms of 'A' level standards, therefore placing entry requirements on par with those of the Universities.

The Eve Report (RICS 1967) probably marked a watershed in RICS educational policy. It concluded:-

i) The future professional surveyor would be a degree holder. The degree having been obtained by full time or sandwich courses.

ii) There was a substantial and clear difference between practical training and professional experience. Practical training was rooted in the absorption of routine and procedure. Professional experience was the exercise of professional judgement based on sound theory.

iii) Formal examinations test the academic competence of the individual. The examination system was to be viewed in the light of the individual gaining theoretical knowledge when he wished and embarking on post examination professional experience. The individual was now required to pass a Test of Professional Competence (TPC) prior to corporate membership. The post examination period was to be a minimum of three years with a remission of one year in approved cases.

iv) The Educational Committee was to consider the establishment of post qualification refresher courses.

v) Senior surveyors still remained insufficiently involved in teaching.

vi) A technical qualification was to be established for those individuals who had completed some professional exams but had failed to reach corporate membership.

The Brett-Jones Report (RICS 1978a)consolidated the work commenced in the Wells and Eve Reports. Its main conclusions were:-

i) The profession's impact on the University sector had been steady rather than spectacular. However, the impact of the profession on University research had been small.

ii) The profession was not as optimistic as in the early 60s. The Report attributes this to two reasons. First, it considered the younger generation was disenchanted with higher education and second, evidence existed to indicate the profession was not fully behind full time higher education.

iii) The creation of the two tier profession, initially envisaged in the Eve Report, had failed to materialise. The Report suggested four reasons. First, the technician's role was difficult to identify in certain divisions of the RICS. Second, the status of technician was unattractive in comparison to that of the professional. Third, the demand for support staff would be affected by the general economic climate and finally, there had been fundamental changes in the national technical education framework.

iv) Pressure from the EEC could force the RICS to adopt a full time educational route to professional qualification. The EEC was only prepared to recognise professional qualifications based on degrees. However, the Report maintained the option

of both the full and part time route.

v) The Institution's examination structure had come under heavy criticism, especially for the high failure rates at each successive stage of the exams. Furthermore, employers did not assist candidates in preparation for the examinations. Potential employees were urged to enter into training agreements with their respective employers.

vi) Degree and Diploma courses had come under heavy criticism from the profession. The Report argued, however, that the profession was in part to blame. First, employers had too high an expectation of the capabilities of new graduates. Second, the failure of the two tier concept for the profession essentially meant that technical support had not emerged. Third, the profession needed to give greater consideration to degree exemptions.

vii) From 1986 only holders of Honours degrees in cognate subjects would be given exemption from written examinations. Those with unclassified degrees would be required to sit the Final exam of the Graduate Entry Scheme.

viii) The research dimension of the profession was suffering due to the Institutions failure to recognise academic research as contributing towards the requirements of corporate membership. The Report recommended creating a special membership class whose practical experience was wholly academic except for one year's practical experience counting towards the TPC.

ix) The Report recommended that from 1980 a minimum of twenty hours per year (or sixty hours over three years) structured learning was necessary for qualified members as part of a system of Compulsory Professional Development.

x) The concept of the two tier profession was to be revised to consider the possibility of more than

two tiers. The members of the profession were seen and defined to be involved in the following areas of work:-

> Technicians, those individuals providing factual information for use and interpretation by others.
>
> Technicians and Professionals, individuals providing, using and interpreting with techniques developed according to well documented and accepted principles and factual information.
>
> Professionals, individuals equipped to innovate, solve structured and unstructured problems and who were involved in policy making.

In a recent Report the Education and Membership Committee (RICS 1983) concluded:-

i) Approximately two thirds of those individuals qualifying as Professional Associates would have taken a degree or diploma exempting them from the Institution's examinations.

ii) There existed a strong body of opinion remaining in favour of maintaining a part time route to qualification, for those individuals preferring this route.

iii) Part time degree courses had developed in certain parts of the country and had generally proved more acceptable to students and practitioners in comparison to the examinations they had replaced.

iv) Some practitioners were still reluctant to grant day release facilities due to the disruption of office work programmes. There was also evidence to indicate that employers preferred to employ graduates from fully exempting courses and expect school leavers and non cognate graduates to study in their own time. The Report, by implication, concluded that colleges offering part time degree courses would have to adjust to the needs of the profession by changing the format and timing of these courses.

v) The Institution viewed the TPC as its own assessment of candidates on completion of their academic and professional training, including at least one year of practical experience on completion of the Final examination or the equivalent.

3. Non Educational Policy Documents

The FOP Report (RICS 1970) concluded:-

i) The profession was not generally education conscious. There was a lack of interest by practitioners in education and a consequent lack of acceptance of responsibility for teaching.

ii) The Report recognised that the status of the profession could be raised by a closer integration of practice and teaching. It therefore recommended first, that teachers who were not qualified members of the Institution should be encouraged to become Professional Associates, allowing them to participate in RICS affairs. Second, those graduates who were academically qualified for corporate membership but elected to teach or undertake research should be allowed to count this towards their period of professional experience, if it was of practical value.

iii) Specialisations should be developed from a general professional education and occur at the post graduate stage.

iv) The Report recognised the permanence and personal nature of a University qualification. Graduates would be in a position to gain employment on the strength of their degree and experience alone. The Report considered that membership of a professional body should be an additional status. The TPC should therefore be considered as ensuring and signifying the professional ability and integrity of individuals as a means of entry to a professional society.

v) The Institution should retain control of all mid career training for the profession and ensure a

viable scheme was devised.

The Institution undertook a major policy review in 1980 culminating in the report 'Surveying in the Eighties' (RICS 1980). In terms of educational and research policy it indicated:-

i) The Department of the Environment had verified that corporate membership of the Institution was at least equivalent to a related first degree.

ii) There were three areas of research activity relevant to the Institution's activities. These were first, the determination of priorities for the RICS. Second, to indicate broader issues of public policy on which the RICS would wish to comment and third, the advancement of professional knowledge and the development of professional techniques contributing to the competence and efficiency of the profession.

QUANTITY SURVEYING EDUCATION AND TRAINING

The Royal Institution of Chartered Surveyors

The following developments in the education and training of quantity surveyors must be placed within the context of the general educational framework of the RICS, mentioned earlier. The following discussion is an amalgam of general educational policy and its particular effects on the Quantity Surveying Divisional Council together with specific reports produced by the latter.

The Wells Report (RICS 1960) introduced minimum periods of training to be completed prior to admission to each of the three tiers of examinations. These were:-

Part 1	One year	Introductory subjects
Part 2	Three years	Mainly advanced technical subjects
Part 3	Five years	More professional aspects

The Report on the Future Role of the Quantity Surveyor (RICS 1971) indicated the quantity surveyor should be trained in the following areas:-

Construction Economics
Techniques of Cost Planning and Control
Engineering Services
Resource Allocation and Programming
Data Communication and Computer Usage
Methodology of Design and Design Economics

The Report considered that mid career training was essential for the quantity surveyor as he could well suffer from educational obsolescence.

The Mason Report (RICS 1982) was essentially a policy document setting out the minimum requirements, expected by the Institution, of the new graduate and the newly qualified quantity surveyor. The Report concluded considerable differences existed in the course syllabi and contents of the various educational establishments offering Quantity Surveying courses. It noted these Institutions had the right to design their own course structures, however, the profession as a whole failed to appreciate this fact. Consequently, as indicated in other policy documents cited earlier, practitioners felt there were differing standards of graduate competence. This had reinforced the hardening of attitudes towards higher education especially with some practices having had to provide a number of their graduates with further basic technical training.

In response to this criticism the Report acknowledged that academic establishments were unable and should not be expected to undertake a level of technical training that could only be achieved with practical experience and the subsequent passing of the TPC.

<u>The Institute of Quantity Surveyors</u>

1. Qualifying Examinations

The Institute's examinations had received recognition by the Local Government Examinations Board (LEGB) in 1948. The LEGB had approached the IQS to assess the standard of the examinations for consideration under the conditions of service approved by the Board. However, in 1951 the LEGB revised its opinion of the standard of the examinations and was only prepared to classify them

as equivalent to Technical Examinations (Lester 1983).

In 1963 the examination system was restructured from a two to three tier procedure, similar to that of the RICS. The new examination system was phased in over a three year period, commencing in 1965. A graduate member grade was also introduced at the same time (Lester 1983). The IQS initiated a Test of Professional Competence in 1964-5. Revised examination syllabi were introduced in 1975 (Dromgoole 1983).[8]

In November 1980 a further refinement to the examination structure was introduced with the Professional Qualifying Requirement. This essentially required applicants for corporate membership, who had passed their Finals; Graduate Entry Examination or Direct Membership examination, to provide written evidence of at least two years' approved professional training (IQS 1979).

2. Education and Recruitment

The entry requirements were set, in 1963, to five '0' levels obtained in any one sitting with concessions given to those with approved 'A' levels. The entry requirements were further revised in 1966 to those of two 'A' levels (Lester 1983).

Healey (1975), using statistics produced by the IQS, indicated that recruitment to the Institute proceeded along six main avenues. In ascending order of importance these were:-

i) Entry by direct membership. Recruitment by this route was constant but small.

ii) Entry by CIOB qualifications at graduate level. This route had gradually increased.

iii) Entry by HNC/HND occurring at probationer level.

iv) Entry by degree and diploma, at probationer and graduate levels. This had shown a gradual increase accelerating significantly in the few years up to 1975.

v) Entry by RICS qualifications. This had remained stable at all levels although increasing significantly in the period 1973-75.

vi) Student entry, which remained stable except for 1973 when it increased by 60% over the previous year's figures. This was the largest source of entry.

It is interesting to note that Franklin (1973) and Sparey (1973) indicate that the RICS revised syllabi were to be introduced in the period 1973-75. Furthermore, the RICS introduced the TPC in 1973. The upsurge in IQS recruitment noted in (v) and (vi) above may well have been as a direct result of these introductions.

3. Research

The IQS, like the RICS, has a Research Committee. However, Skoyles (1979) intimated that, by its very nature, the Quantity Surveying profession had been non scientific and with poor academic standards. He noted that in the pre World War Two era training, by part time courses and articled pupilage, was strictly controlled by the dictates of professional examinations. The post war period, especially in the 1960s, saw considerably more opportunities for training, stemming from the growth in the number of Universities and Polytechnics. However, Skoyles concluded there was little incentive or opportunity for an individual to undertake research, primarily due to the fact that Quantity Surveying, as an academic discipline, was in its infancy.

THE TRAINING INSTITUTIONS

The prime objective of this section is to establish the first impetus for the establishment of training institutions for the education of surveyors. It is, therefore, not concerned with the numerous educational establishments existing at the present time.

1. Institutions in England

Links with University standard education were developed

with the establishment of the College of Estate Management (CEM) in 1918 and a degree course in Estate Management at Cambridge University in 1919. The RICS were initially reluctant to acknowledge the CEM (Thompson 1968). The CEM was given its Royal Charter in 1923. In the period 1930-45 the College expanded its full time teaching and research capabilities and subsequently laid the foundation for the post war expansion as a full time University educational establishment. In the early 1960s the CEM was anxious to form a close association with a University and to move outside London. Transfer to Reading University was completed in 1973 to form the new Faculty of Urban and Regional Studies (Lofthouse 1977, Thompson 1968).

The CEM was established initially to provide tuition in Estate Management. However, with the move to Reading University and in response to the needs of the profession, the CEM ceased full time education and developed professional training through correspondence courses in all aspects of surveying. The postal courses mainly catered for RICS examinations (Thompson 1968, Lofthouse 1977).

2. Institutions in Scotland

The Glasgow Institute of Measurers andthe Edinburgh Society of Ordained Surveyors formed close links with Stowe College, Glasgow and Heriot Watt College, Edinburgh respectively. Both Colleges provided non agricultural surveying courses run by qualified surveyors and were the first to do so in Britain.

PROFESSIONALISM AND THE CLAIMS TO PROFESSIONAL STATUS

1. General Claims

The Journals of the RICS have, on numerous occasions, presented articles from prominent professionals on the general nature of the ideals of 'profession' and 'professionalism'. A number of these articles are

presented below to provide an insight into the surveying culture.

Lord Denning (1971), Lord Scarman (1972) and Sir Desmond Heap (1973), all notably eminent lawyers, presented their views on professions and the professional.

In summary they were concerned with:-

Professional confidentiality and judgement
Entry standards, training and discipline
The duty to the client
Service to the community
The maintenance of professional standards of technical competence and the protection of society
The maintenance of professional integrity

Benson (1980), ex-president of the Institute of Chartered Accountants, believed the

> "...primary function of a true profession is to give advice and service to the community in a specialised field of learning"(p.151).

To Benson the essence of a profession was to raise standards and ensure people with appropriate skills were available to serve. Furthermore, the period of training was justified to protect the public and would only be undertaken if the unskilled were unable to do the same work. There should, according to Benson, be no artificial restrictions on entry to a profession except on two issues. First, a university degree should be a necessary condition for a professional career and second, numbers of entrants should be restricted to those who could be given practical training by competent practitioners.

2: Specifics

The FOP Report (RICS 1970) noted that

> "...Traditionally, professionalism has imported, in addition to the ingredients of knowledge and an educational process for acquiring that knowledge, the characteristics of a standard of qualification(based on character, training and proved competence), a standard of conduct

> (based on courtesy, honour and ethics), recognition of status (normally by the State, through a Charter or registration) and a professional organisation devoted to the advancement of the profession as a whole" (p.4).

Howes (RICS 1980) noted professionalism had remained an essential and developing feature of surveying practice for more than a century. Howes, like Strachan (1978) felt professionalism, the professional man and the professions were coming under increasing criticism by society as being elitist or monopolistics. The above views were predominantly RICS based. It is interesting to note a comment made by the Monopolies and Mergers Commission (HMSO 1977), which pointed to the problems that are inherent in the Quantity Surveying specialism.

> "...Since 1968 the rules which prevented members of the Quantity Surveying Division from working as directors or employees of contractor's organisations have been relaxed and there is no longer any such prohibition. However, members performing the function of Quantity Surveying are not allowed to work in a contractor's organisation and to be engaged in professional practice at the same time. For those purposes 'contractors organisations' includes a property company having a wholly owned subsidiary whose business consists of building or civil engineering contracting. Contractors organisations employing Chartered Quantity Surveyors are not permitted to hold themselves out as providing an independent surveying function to the public" (p.97).

Professional Status and the Quantity Surveyor

1. RICS Policy

The FOP Report (RICS 1970) envisaged the Quantity Surveyor, apart from his traditional functions, extending his speciality into the areas of civil engineering, the costing of engineering services and 'Social Accounting', ie, environmental economics.

The Future Role of the Quantity Surveyor Report (RICS 1971) was more specific on the above points. It concluded there were a number of areas where the quantity surveyor could fruitfully be employed. These were:-

i) The economic management of a project.

The RICS believed the involvement of the quantity surveyor in the financial control aspects of construction activity, contractual and tendering procedures and his communications responsibilities equipped him for this role. The Report believed this to be the most suitable area.

ii) Production and Resource Control

Clients were increasingly utilising Quantity Surveying expertise prior to the commencement of design. They were increasingly expecting the quantity surveyor to take full responsibility for firm estimates in the decision for financial resource commitments. In order to undertake this responsibility the quantity surveyor must have an appreciation of the impacts, on cost, of interruptions to and alternatives of production methods.

iii) Cost Engineering

This was in an embryonic form on industrial engineering projects. A number of Quantity Surveying practitioners were already involved in the petrochemical field. The Report noted this role should be expanded.

iv) Mechanical and Electrical Services and Civil Engineering

These areas had few established Chartered Quantity Surveyors and again the Report intimated the area should be developed. The Report considered that clients did not obtain or receive adequate financial control in the M & E field or in civil engineering, although noting that civil engineers considered design and costing to be their responsibility. However, the Report concluded that the field could benefit from the independent quantity surveyor.

v) Contracting Organisations

The Report stated that the quantity surveyor should

be encouraged to accept appointments with high levels of management responsibility.

The expansion of traditional roles into the above areas was seen as a natural progression due to the quantity surveyor's growing concern with the economy and financial aspects of construction and development in the early stages of a project.

RICS policy on the expansion of the quantity surveyor's role was further elaborated with 'A Study of Quantity Surveying in Planning' (RICS 1979a). It emphasised that the involvement and influence of the quantity surveyor was almost nil. The unique provision of the quantity surveyor would be in the provision of information and judgements on building costs. This lack of involvement was postulated to be for several reasons. First, planners felt that the quantity surveyor was too narrow in his outlook and could not adequately function without hard facts on which to base estimates. Second, the structure of Local Government organisations inhibited professional interaction. Third, individual careers could suffer due to specialisation. Fourth, engineering departments had developed close relationships with planners and provided cost information on infrastructure. The quantity surveyor was seldom involved, and finally cost information was also provided by Local Government Treasury Departments.

The Report, although indicating that individual surveyors appeared indifferent to taking up appointments in planning, concluded the specialism should be encouraged to develop its own contribution in this area.

2. Personal views on the Professional Role

Tyrrell Evans (1954) and Male (1977) stress the importance of impartiality. The latter considered the Quantity Surveyor had a duty to interpret and administer the building contract to honour both client and contractor. However, subject to this consideration the quantity surveyor operated entirely and exclusively in the client's interest.

In keeping with the expanding role of the quantity surveyor, Bennett (1977) believed if the quantity surveyor was to accept responsibility for cost control he must influence the early and formative design stages by utilising cost planning techniques. Bennett considered the involvement of the quantity surveyor in the early design stages was important for the status of the profession. Furthermore, the development of cost planning techniques was of central importance to the development of the profession.

3. The Management Role

In a Report produced by the IQS (1976) it was suggested that the quantity surveyor also had a potential role in project management. The Report defined project management as

> "...the function of planning, managing and controlling a construction project on behalf of a client in order to achieve a completed project which satisfies the client in terms of his own needs within the constraints imposed upon the client and the project by society and the maintenance of the project through its life" (p.8).

4. Professional Status

Higgins and Jessop (1965) considered cost planning to be a significant development in the quantity surveyor's claim to professional status. They believed the traditional function of measuring, either from drawings to produce a Bill of Quantities or 'as complete' for valuations and final account purposes, was less than a full professional function. The full professional role required not only expertise but also the participation in decision making by using expert judgement. The measuring function, although considered necessary for decision making, did not directly affect clients in the same way as the judgement or advice of the architect or consultant.

Higgins and Jessop believed it was only since the Second World War, with the development of Cost Planning techniques,

that the expertise, judgement and advice of the quantity surveyor had brought him within the decision making arena. Furthermore, they concluded that cost planning placed the quantity surveyor in a role of high discretion; a role where he would be held responsible for decision outcomes. They indicated that measurement alone placed the quantity surveyor in a role of low discretion because Standard Methods of Measurement fully prescribed the procedures to be undertaken in the production of Bills of Quantities.

Higgins and Jessop continued to emphasise the developing professional status of the quantity surveyor with the evolution of cost estimating and cost control techniques. They noted the former was originally provided as a service to the architect but client bodies now approached the quantity surveyor directly to provide this service. The latter service of cost control, according to Higgins and Jessop, placed the quantity surveyor fundamentally in a decision making role during the design and construction process. The developments of cost estimating and control rest predominantly on the same techniques and information sources as cost planning.

5. Fee scales versus competition

The RICS, in their case presented to the Monopolies and Mergers Commission (HMSO 1977) utilised three arguments to justify their adoption of fee scales for the provision of services. The arguments were:-

i) The concept of professional conduct

The Institution considered the professional man to be on his honour to protect his client's interest. Profit maximisation, even in the long term, was considered to play no part in the profession. The securing of business through competition was seen as militating against the attitude of mind required of professional men.

ii) The Quality of Service

The Institution considered the prohibition of

competition was in the public interest because it would allow the provision of a reliable service. Any competition should be channelled into education and training, to enable the profession to establish a reputation, rather than to succumb to competition based on price alone.

iii) The protection of surveyors themselves

The RICS argued that work, in the construction industry, was cyclical and services offered by quantity surveyors were relatively homogeneous. The Institution noted clients were considerably more economically powerful than surveyors. Therefore, the prospect of securing an individual project would be more important to the latter than the former.

The Commission also noted,

> "...Members of the Institute of Quantity Surveyors are also expressly debarred from competing with one another by reducing fees. The IQS claims that the public shows wisdom in using the services of the IQS members whose standard of expertise is recognised rather than the services of the unknown, unqualified Quantity Surveyor. The public has neither the ability nor expertise to judge the standards of service of different surveyors and thereby to derive any real benefit from cut throat competition between surveyors" (para.155).

6. Influence and Power

Strachan (1978) suggested that professionals in the Surveying Profession should, in view of the criticisms made against the professions, adopt a more active stance and could no longer remain outside political life.

This sentiment was echoed by the Report 'Surveying in the Eighties' (RICS 1980). On the issue of public affairs the RICS indicated four areas in which it could have influence. These were:-

i) The promotion of informal debate on policies prior to them becoming party political issues.

ii) The provision of advice to Government when called upon.

iii) The initiation of continuous dialogue with legislators as a means of supplying facts and advice.

iv) The responding to consultative documents.

The Report emphasised however, that the RICS should, "...avoid all shades of political contention but attempt to influence all shades of political opinion".

7. Knowledge bases and core activities

Bennett (1977) saw the central core of Quantity Surveying knowledge as

Construction technology
Analysis and measurement
Communications
Statistics
Financial administration and control
Construction economics

He further considered the Quantity Surveyor should have some knowledge of

Law
Economics
Computer techniques
Management and information science
Architectural and engineering design
Land economics

Bennett argued the latter group of subjects would enable the quantity surveyor to involve other professions and utilise their advice if the need arose.

The Mason Report (RICS 1982) concluded that construction analysis and measurement underpinned the whole of Quantity Surveying. The Report defined the core constituents of Quantity Surveying activity, these are set out in Table 2 The IQS requirements for professional competence are indicated in Table 3

Table 2 The Core of Quantity Surveying Activity
Source Mason Report (RICS 1982)

1. Project Appraisal
   Cost planning as a member of the design team in
   the application of construction analysis and measurement
   the establishment of maintenance/operating costs
   the establishment of initial costs
   the evaluation of marketing/operating costs
   the determination of value for money
   advising on investment and profitability
   exercising cost control

2. Contractual Arrangements
   advising on tendering methods and processes
   the application of construction analysis and measurement
   the preparation of contract conditions and contract documentation
   advising on legal implications
   tender evaluation

3. Contract Settlement
   the application of construction analysis and measurement
   preparation of final accounts
   establishing and agreeing rates and prices
   evaluation and agreement of contractual claims
   preparation of cost reports
   advising on contractual liabilities, responsibilities and legal implications

4. Ancilliary professional duties
   supervision of staff at various levels
   the anticipation of cost significant and contractual factors inherent in the project and its design
   advising clients in clear and unambiguous terms bearing in mind their best interests
   the acceptance and adherence to professional ethics

5. Support services requiring knowledge of
   construction technology and an ability to understand and analyse drawings
   costing
   (i) analysis of prices
   (ii) cost analysis
   (iii) principles, terms and techniques of cost planning
   contract documentation
   (i) the format of the Bill of Quantities including and understanding preliminaries
   (ii) translation of drawings into measurement items
   (iii) sound knowledge of the different forms of building contract currently in use
   accounting
   (i) evaluation of work in progress
   (ii) final account structuring
   (iii) post contract procedure

Table 3 Professional Requirements and Experience

Source Professional Qualifying Requirements and Experience (IQS 1980)

1. Measurement
   - Site surveys and physical measurement
   - Measurement of building, civil engineering and services work
   - Processing dimension sheets into contract bills
   - Drafting contract conditions, preliminaries and trade preambles
   - Editing contract bills
   - Specification writing
   - Measurement of variations and remeasurement
2. Cost Planning Cost Control
   - Compilation and development of cost analysis data
   - Preparation of outline and detailed approximate estimates
   - Cost planning
   - Ascertainment of grants and taxation allowances
   - Assessment of maintenance and cost in use information
   - Cost evaluation of alternative design or method of construction
   - Preparation of periodic cost reports
3. Contract documentation and administration
   - Advising on forms of contract and their preparation
   - Examination and evaluation of tender documents
   - Preparation of valuations for interim payments
   - Pricing variations and preparing final accounts
   - Preparing variation of price claims
   - Preparation and evaluation of contractual claims
4. Tendering and Estimating
   - Obtaining and building up prices for resources
   - Building up prices for unit and preliminary rates
   - Ascertaining margin for overheads and profit and compiling the tender sum
   - Preparing tenders for Design and Build schemes, including preparing quantities and specifications
   - Evaluation of contractors and sub contractors tenders
   - Cost reduction exercises including negotiations
5. Construction Management
   - Planning programming and determining the requirements of resources
   - Advising on cost, contractual implications, procurement of resources or progress during the work
   - Cash flow forecasting
   - Placing orders with sub contractors and suppliers
   - Cost studies on site activities
   - Monitoring and predicting profitability of construction work and preparing management accounts
6. Specialist activities
   - Surveys, schedules of conditions and delapidations on existing structures
   - Insurance matters
   - Arbitration proceedings
   - Legal proceedings
   - Insolvency of a party

8. Tasks

The tasks undertaken by the Chartered Quantity Surveyor are indicated in Table 4, (RICS 1978b).

Table 5 details those tasks normally undertaken by a quantity surveyor working in a smaller contracting organisation (IQS 1980). The IQS noted that in the larger company tasks tend to be more specialised, covering a narrower range of activities, since different departments handle different activities.

In practical terms, the QS Practice Study (RICS 1974) noted that Quantity Surveying remained a profession of generalists with considerable emphasis on experience. Partners were usually involved with the provision of budgets for client organisations, other Quantity Surveying staff were involved in only providing technical backup. The Mason Report (RICS 1982) to a considerable extent validated this finding, although it noted there was often no clear distinction between those involved in technical and professional skills. However, the Report noted these latter skills were more predominant at senior levels. The Practice Study also indicated that in local and central government, senior Quantity Surveyors were more likely to be performing a management function; this would also be prevalent for those working in more senior levels within contracting organisations. The Study concluded there was some correlation between specialisation and size, with specialisation more pronounced in the public sector.

QUANTITY SURVEYORS IN ORGANISATIONS

The following discussion presents information from a number of studies, undertaken mainly by the RICS, on the work settings of the Quantity Surveyor. The section is structured to deal with the general arrangements of working practice and subsequently organisational arrangements in the Private and Public sectors.

Table 4 The Principal Services of the Chartered Quantity Surveyor
Source RICS (1978 b)

Preliminary Cost Advice
Advising on Contractual Methods
Advising on contractor selection
Preparing tender documents
Obtaining or negotiating tenders
Cost Planning
Valuing construction work
Preparing and agreeing accounts with contractors
Preparing expenditure statements for tax and accounting
Technical auditing
Assessing replacement values for insurance
Project control
Expert advice in arbitration and disputes

Table 5 Activities of the Contractors Quantity Surveyor
Source IQS (1980)

Preparing Bills of Quantities
Agreeing measurement with Private Quantity Surveyors
Collecting and collating information allowing the contractor to prepare future estimates
Preparation of material requirements for jobs in hand
Preparation of bonus targets
Preparation of interim costings for project financial control
Contract planning and preparation of progress charts in conjunction with site management
Preparation of variation orders for the Architect
Agreeing sub contractors accounts
Cost comparisons of alternative production methods

The General Structure of Practice

Turner (1979) discussed three means by which working arrangements can be divided. These divisions are dependent on the size of firm and workload.

1. The Parallel Group (Figure 5)

   Staff are divided into a number of groups each capable of carrying out the total scope of work undertaken by the office. Turner noted this arrangement effectively breaks the structure of the practice into small offices. Working procedures involve a large contract being undertaken by the whole group with smaller projects dealt with by one or two surveyors. Individuals within the group are responsible for individual projects at the post contract stage. Staff, in general, have a preference for this structure.

2. The Production Line Group (Figure 6)

   Working procedures are divided into stages with groups responsible for undertaking one stage only.

   Specialisation is the primary reason behind this structure. Further subdivision can be achieved, especially in larger practices, where the pre-contract stage can further be subdivided into estimating and cost planning; production and tender examination and negotiation.

   Staff continuity on any one project is lost with a possible loss in individual satisfaction. However productivity may increase.

3. The Complex Structure

   In larger practices the previous two arrangements may be combined. A practice may be structured into major groups and then subdivided into production groups and parallel groups, depending on project size.

Private Practice

Evidence presented in this section deals specifically with a 'typical firm': it details research data set out in the QS Practice Study (RICS 1974).

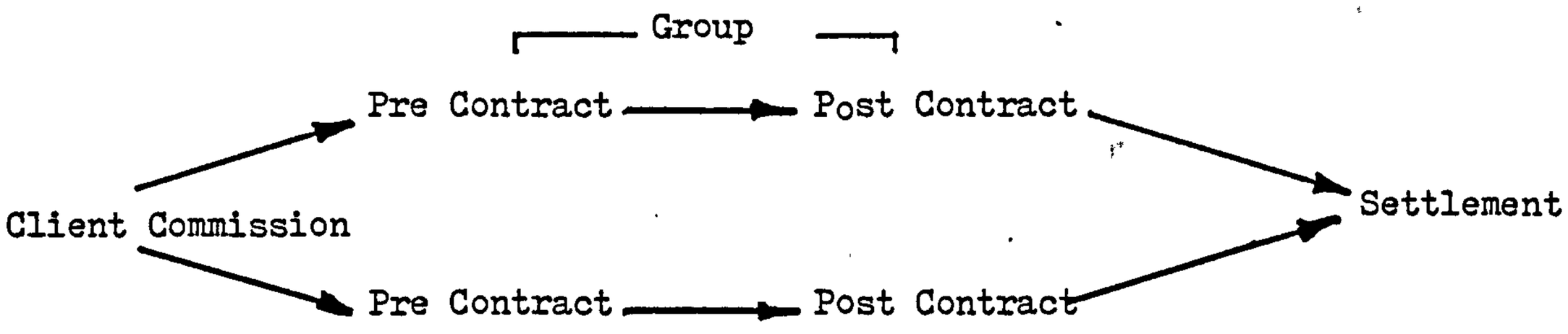

Figure 5 Parallel Group Working
Source: Turner (1979)

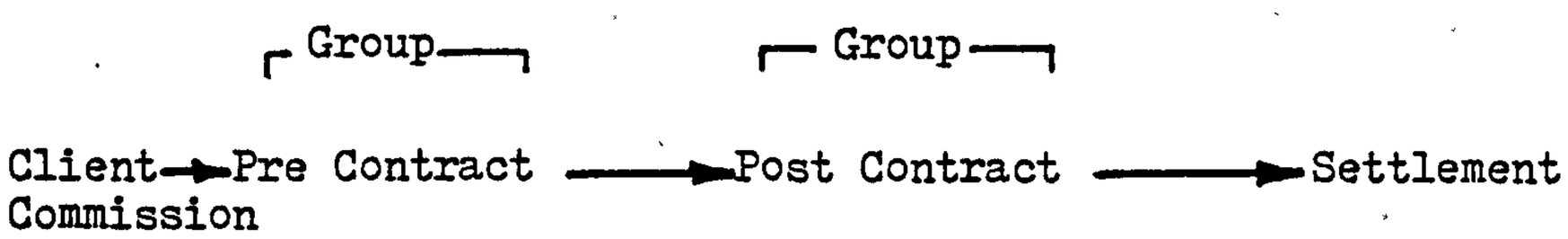

Figure 6 Production Line Group Working
Source: Turner (1979)

1. The typical one or two man firm

This organisation is likely to have the following characteristics

i) It will be staffed by a sole principal supported by a technical assistant or two partners with no other technical staff.

ii) The organisation will be relatively young, established since 1955.

iii) The firm will be located in South East England and operate from a suburban address.

iv) The firm will have a relatively heavy workload, regularly producing Bills of Quantities and Final Accounts but its overall workload will normally be in areas peripheral to mainstream Quantity Surveying.

v) The principal or partners will not be studying for higher degrees or be involved in occasional teaching.

vi) Securing a steady workload will be a problem although the staff will adjust their private lives to suit fluctuations in workload.

2. The typical small firm

Characteristically this organisation has the following properties

i) The organisational size will vary from two to ten people and represents the most common sized practice.

ii) The organisation will have been founded in the post war period, usually established during the period 1945-69.

iii) The firm will have a definite structure. It will be located in South East England and any branch office will have some degree of autonomy.

iv) Working relationships will be informal with a staffing pattern of one qualified surveyor per partner.

v) The organisation's main income will be derived from Bills of Quantities and Final Accounts but work will tend to be in non mainstream Quantity Surveying.

vi) Commissions will probably come direct from clients although forecasts of workloads are still problematic.

vii) The partners are unlikely to favour full time Quantity Surveying education and employment policy will tend to reflect this.

3. The typical medium sized firm

i) The organisational size will be in the range ten to fifty.

ii) The organisation will be more geographically dispersed although the tendency remains for it to be located in London.

iii) The firm will have been established during the period 1945-55.

iv) Organisational structures will be problematic with branch offices tending to be administered centrally.

v) Working relationships tend to remain informal with staff being encouraged to specialise. Staffing patterns will probably be one or two qualified surveyors per partner.

vi) Commissions will usually be direct from clients especially if they are public sector organisations.

vii) Partners will tend to have responsibilities for groups of clients but will not normally have administrative roles except in branch offices.

viii) Medium sized forms are the most innovative in the profession and professionalism is taken seriously.

ix) Work loads are usually in mainstream Quantity Surveying and the firm often works in close co-operation with other Quantity Surveying firms.

x) Partners will not favour full time Quantity Surveying education but will have employed graduates.

4. The typical large firm

This type of organisation will have the following characteristics

i) Organisational size will be in the range fifty to three hundred.

ii) The firm will have been established during the period 1914-39.

iii) Head office will be located in central London.

iv) The organisational structure is more formalised with staff arranged in permanent or semi permanent teams under the control of an associate or partner. Team sizes are in the order of four to ten surveyors. Branch offices are common.

v) The staffing pattern is normally three qualified surveyors to one partner.

vi) The firm's workload will be in mainstream Quantity Surveying with the bulk of its income coming from traditional Quantity Surveying work. Furthermore, the organisation will have a comprehensive costing system.

vii) Commission for work will come direct from private and public sector clients.

viii) Staff specialisation is not evident except in Mechanical and Electrical services.

<u>The Public Sector</u>

The consensus of opinion gained from a number of Reports is that the public sector quantity surveyor is at a disadvantage especially in Local Government.

The RICS (1971) noted that quantity surveyor appointments are seldom at Chief Officer level with the profession often subordinated to another profession, usually Architecture or Engineering. Turner (1979) went further when he commented that the quantity surveyor does not stand in an entirely

independent position since he is a direct employee of the client organisation. He concluded however, this should not affect his professional integrity but standing orders and procedures may limit his freedom of action. Turner noted, that in spite of these difficulties, most public service quantity surveyors will operate in a manner similar to those in private practice. The Study of QS Practice (RICS 1974) was more explicit. It noted that sub-servience to another profession is a constant source of dissatisfaction for those employed in Local Government. However, it should be noted that research evidence, on which the Report was based, had been gathered just prior to the reorganisation of Local Government. The evidence presented below on the organisational contexts within which certain public sector surveyors are employed can, therefore, only be considered as an indication of employment circumstances.

1. Local Government

The Chief Quantity Surveyor holds only a third or fourth tier position. Organisational structures greatly affect the nature of the work and the extent of the quantity surveyor's responsibilities. Furthermore, Engineering Departments closely guard measurement tasks which they consider as being part of their speciality. It is also unlikely the quantity surveyor will be in a policy making role, at Committee level, but will normally be in a supportive role to his Head of Department.

a) The typical County Council

Quantity surveyors will normally be organised in a 'section' forming part of the Architects Department. The section characteristics are,

i) Section size usually less than twenty professionals and technicians.

ii) The Chief Quantity Surveyor holds a third tier position and reports directly to the Chief Architect.

iii) Professional subservience is more marked at Committee level where the County and Deputy Architect report on cost and project planning advice direct to the Committee.

iv) The section is structured on a semi permanent team basis. Principal Quantity Surveyors act as team leaders backed up by qualified surveyors. The Principal will report direct to the Chief Quantity Surveyor with technical and trainee staff floating between teams.

v) The Chief Quantity Surveyor will be responsible for recommending, commissioning and controlling external Quantity Surveying consultants who are often employed regardless of in house workloads.

vi) Tasks in the section, apart from traditional services, also include the budgeting implications of Departmental construction programmes, monitoring workloads and resources within the County Architects Department.

b) The typical County Borough

The section will be of a similar size and organisation to the County Council. The section characteristics are,

i) Job titles of section heads are not necessarily that of Chief Quantity Surveyor.

ii) A higher proportion of the services are supplied to the Department although some outside consultants are used. The consultants are commissioned in the same manner as County Councils.

iii) Tasks are mainstream Quantity Surveying duties with cost planning used to a greater extent. The section will be involved in framing construction programme budgets although to a lesser extent than County Councils.

c) The typical Borough

The Quantity Surveying section forms part of an Architects Department, an Engineers Department or the Borough Surveyor's. Its characteristics are,

i) Section size of less than ten professional and technical staff.

ii) The Chief Quantity Surveyor may be responsible directly to his Department Head or an intermediary.

iii) The section will provide a high proportion of mainstream Quantity Surveying services to the Department.

iv) The use of outside consultants is less frequent and the section will be unlikely to recommend or control them.

2. New Towns

Tradition plays a less important role than in Local Government and contact with senior management is more probable. The quantity surveyors are likely to form part of the Architects Department although they may form a separate Department. However, the status of the quantity surveyor is still similar to that in Local Government.

Departmental considerations are less influential, the project forms the main focal point. Quantity surveyors are,therefore,more likely to participate in inter departmental decisions due to less formal organisational structures. The typical New Town Development Corporation has a Quantity Surveying section structure whose characteristics are

i) A section size of over twenty professional and technical staff.

ii) If the section is organised as a separate department it will be under the direction of a Chief Quantity Surveyor. If it does not have Departmental status but forms part of the Architects Department it will

be under the direction of a surveyor who will be directly responsible to the Chief Architect. However, in either case the surveyor will not be of equal status or responsibility to the Chief Architect or Chief Civil Engineer.

iii) The section will provide most if not all Quantity Surveying services to the corporation. It will also recommend, commission and control outside surveying consultants appointed by the corporation.

3. Regional Hospital Boards

The quantity surveyors will normally be under the control of a Regional Architect. Section size will normally be less than twenty professional and technical surveyors and they will provide services in the area of general cost control within the Department's procedural framework, normally as a member of a particular project team. The Regional Quantity Surveyor will be a member of a Planning Group but will be unlikely to be involved at Committee level or in a position to offer cost advice. Private practice consultants are likely to be involved in a proportion of the Department's work load.

4. Nationalised Industries

There is no typical Quantity Surveying office. However, two types of structures exist. First, the surveyors form a small advisory group consisting of less than ten people. Second, a large organisation comprising twenty to fifty professional and technical staff.

In either case the section is likely to be part of an Architect's or Engineer's Department. The Quantity Surveyors will provide a high proportion of the normal surveying functions as well as measurement of civil, mechanical and electrical engineering work.

The use of outside surveying consultants is more widespread with nationalised industries. The surveying section will be responsible for recommending,commissioning and controlling the consultants.

5. The Civil Service

A dual status exists within the Civil Service for quantity surveyors. In areas other than with the Department of the Environment (DoE) and the Property Services Agency (PSA) the top Quantity Surveying posts are normally two grades below the top Architectural positions. In the DoE and PSA the Chief Quantity Surveyor is of equal status as other professions.

The Property Services Agency

There is no typical office. The Agency is structured on a Regional basis with a Headquarters Directorate located in London. Quantity surveyors are employed in all offices and headed by a Superintending Quantity Surveyor. Certain characteristics are common amongst the offices

i) Quantity Surveying staff are responsible for a major proportion of normal professional services.

ii) External surveying consultants are also utilised with Agency surveying staff responsible for recommending, commissioning and controlling them.

iii) In addition to normal services, quantity surveyors may also be involved in research, development and advisory work.

CLIENT ORGANISATIONS

Higgins and Jessop (1965) distinguished between levels of sophistication among clients in the construction industry. The sophisticated client can be an individual or organisation who has a good knowledge of the building process and the contributors to that process. This knowledge will normally be derived from experience.

At the other end of the spectrum is the naive client. This may again be an individual or organisation who has never built before or who has only used the services of the construction industry intermittently. Higgins and Jessop

noted that prior to reaching a decision to build, the naive client will normally seek advice or obtain information from a position of almost complete ignorance. His initial contact may, in view of this position, be another client of greater sophistication than himself.

Crichton (1966) concluded that the traditional view of the industry is the architect "taking a brief from his client". He noted the inherent assumption in this idea is communication on a one to one basis. However, Crichton emphasised this to be an obsolete concept since, in the majority of cases, the client is a complex of systems. Furthermore, the client 'complex' seldom has a relationship with a single member of the building industry. Crichton concluded even if the relationship is initiated through individuals it rapidly becomes "...a conference of groups on both sides".

Traditionally, the first contact has been the architect. However, with sophisticated clients it may be the quantity surveyor or builder. The choice of initial contact is determined by the building needs of the client (Higgins and Jessop 1965). NEDO (1983) although specifically dealing with industrial projects, noted for purpose built projects the customer can vary in size from the small family business and partnership to multi-national and corporate enterprises. For advanced projects a similar diverse client universe is evident. These include public bodies, financial institutions and development companies. NEDO concluded that, of the projects they surveyed, those that invariably went well, involved experienced customers who were prepared to supply a substantial management input into the project. The inexperienced clients were usually involved in an array of relationships with firms and generally found the building process to be highly complex. Furthermore, NEDO noted clients are not a homogeneous group and are in no position to apply uniform standards to professionals and organisations with which they have contact. NEDO also indicate there are no readily accessible sources of information to guide their expectations and choices. NEDO believed, therefore, inexperienced clients

are disadvantaged as they have no certainty of obtaining maximum service from the industry every time.

The complexity facing the client organisation has previously been indicated in Figure 1 page 4 , where the construction process is presented diagrammatically.

INTERNAL DEBATE WITHIN QUANTITY SURVEYING

This section explores certain issues raised earlier in the chapter. The primary objective is to highlight some of the internal and external dynamics facing the profession.

Education

The most significant appraisal of policy on surveying education was the publication of the Brett-Jones Report (RICS 1978a). The profession produced a number of comments on the Report and in general it was received with mixed feelings. The significant points raised in the debate are highlighted below (RICS 1979b).

The membership was in favour of maintaining full and part time routes to qualification with a distinct preference for the latter in certain areas of the profession. The Report was criticiesed for underestimating the practical bias of the profession, differing specialisms had differing needs and as a consequence the Report had been unwise in handing over examination responsibilities to academic bodies.

The profession supported the stance taken on academic entry requirements but felt that more consideration should be given, in terms of exemptions, for those with technical qualifications. The profession supported the existence of the TPC. Academics felt the TPC should be strengthened whilst practitioner's felt the requirements should be eased for those undertaking a part time route to qualification. Furthermore, practitioners also felt degree courses should be more closely monitored by the RICS since standards appear to vary among institutions.

Research proved to be a thorny issue. The profession supported the case for research experience counting towards

all but one year of the TPC. However, there was a lack of support for a special class of corporate membership for researchers. Practitioners felt strongly that these individuals should not be entitled to the designation Chartered Surveyor. Academics believed the concession to the TPC should be sufficient.

Practitioners accepted in principle the need for CPD, but had reservations about compulsory learning. Many members regarded CPD as an attack on their competence and integrity. The concept of a two tier profession was not supported.

Quantity Surveying Roles

Higgins and Jessop (1965) saw the traditional role of the quantity surveyor "more as a St Christopher" assisting the passage of the construction project from the professionally oriented design stage to the commercially oriented construction stage. In this role he is acting predominantly as a communicator with the Bill of Quantities as the communicating medium. However, they concluded

> "...He (the Quantity Surveyor) drew the chess board and made the pieces and even kept the score, as it were, but was never involved in the game" (p.45).

The IQS, in their comments on the Future Role of the Quantity Surveyor Report (RICS 1971), pointed out that until comparatively recently Quantity Surveying had emerged from the needs of the contractor. It acquired its usefulness to clients and architects only in the process.(IQS 1970). The IQS further added that the strength of the quantity surveyor's role lay in two areas. First, the use of Bills of Quantities allowed price reduction since their accuracy lowered the margin of error between estimates and the final account, leading to a reduction in disputes between architects and contractors. Second, the independent quantity surveyor occupied a quasi-judicial role.

However, the IQS noted the growing trend amongst large and medium sized contracting firms, to employ their own quantity surveyors, had driven the independently engaged surveyor closer to the side of the building owner. They concluded,

> "...There is far less confidence placed by the contractors in the impartiality of independent surveyors whose interests have appeared all too often to have been in future commissions rather than in just settlements of contentious issues. The standards of professional integrity, have in many contractors eyes, dropped concurrently with the standard of Bills of Quantities" (p.103).

Professional Status and the Quantity Surveyor

The status of the quantity surveyor has sparked off considerable debate within the profession. The flavour of this debate is best captured by quotation. The RICS noted,

> "...Recent developments in the profession's role have taken place rapidly. They have been largely based on pragmatic and practical considerations and there has been insufficient examination of their underlying theoretical validity. These circumstances leave Quantity Surveying as a strong practical profession with an inadequately defined academic base. The lack of an established science of Quantity Surveying inhibits research and development, limits the profession's education and in the future may restrict the development of practice. The vitality of practice suggests that research and development should be directed towards the study and advancement of the profession's basic disciplines of analysis, measurement and valuation to meet changing requirements" (RICS 1979c,para 'The state of the Quantity Surveying Profession').

Doig (1975) considered a fundamental reappraisal is required of Quantity Surveying and Architectural roles , especially at the tender stage. Doig believed tender and contract procedures should be the responsibility of the Quantity Surveyor, under his cost control function. He based his argument on the principle that the tendering system is concerned with the economic use of construction resources and not with obtaining the lowest possible price. Doig was of the opinion that the system would be improved if the quantity surveyor was to measure site productivity and advise on the basis of construction costs. He considered this to be the next significant step for the profession.

In a vociferous article commenting on the Future Role of the Quantity Surveyor Report the IQS felt the profession

had drifted in recent years and the essentials of a profession were being lost. The article indicated,

> "...To qualify surely as a profession, an exclusive service must be offered, which only the members can properly give; accountants, architects, dentists, doctors, engineers and lawyers all provide services, which only they, by their training, can perform. They are self sufficient, with the possible exception of the architect" (IQS 1970 p.104).

The article continued,

> "...The role offered for quantity surveyors by the RICS Committee, involves nibbling a little at the architect's profession, a little at the accountants, a little at the valuation surveyor's and a little at the computer services, also dabbling into factory control"

again,

> "...The new technologist, as he is called, is, therefore to be a hybrid and as such the fear must be expressed, he cannot last long as a profession, since such a role will always be better performed by a team than by one man" (p.104).

The IQS believed the translation of drawings and specifications, for building works, into a document capable of being priced is the only function exclusive to Quantity Surveying. The Institute considered this to be true regardless of how quantity surveyors are employed;

> "...Civil engineers are still jealous of their own production of tender documents, and it is only the fact that architects are normally temperamentally incapable of doing the job that gave quantity surveyors their opportunity as a separate profession in the first place"

Furthermore,

> "...another similar area is cost planning, but however much more capable quantity surveyors may be in the techniques of cost planning, the permanent divorce of cost considerations from the design function is unthinkable for the survival of Architecture as an independent profession, whose divorce from the construction side of the industry is already being seriously questioned. Kept independent, architects must become self sufficient by their own devices. Unite them with contractors and no separate cost consultant will be required"

Many of the sentiments mentioned above were reiterated by the Monopolies and Mergers Commission. They concluded,

> "...In their respective fields, civil engineers and mechanical and electrical engineers offer to prepare Bills of Quantities and carry out post contract Quantity Surveying services. It is quite often the case that consulting engineers and architects have Chartered Quantity Surveyors on their staffs to undertake this work but engineers in particular tend to consider that Quantity Surveying services are within the purview of their own discipline" (HMSO 1977, p.97).

The Quantity Surveying profession not only faces problems of lack of clear disciplinary boundaries. It also faces a lack of awareness in the eyes of the public. Edge (1975), a polytechnic lecturer, noted on recruitment,

> "...The Quantity Surveying profession...is a fairly restrictive profession. We have in our careers meetings and conferences, which we have attended or mounted, found that we have an interest from school children at fourth or fifth year levels in Quantity Surveying, but they don't understand what it's all about. They think they are carrying bricks still" (p.126-137).

Coates (1977) also a polytechnic lecturer, echoed these sentiments. He noted Quantity Surveying is a self effacing profession. After more than fifty years of chartered status its functions are little understood by the general public. It has failed to share the self esteem which other disciplines have acquired through public respect. Furthermore, a full sense of vocation was almost always lacking or had been misdirected in applicants for diploma or degree course places.

The State and the Surveying Profession

The Monopolies and Mergers Commission disputed many of the claims made by the Surveying profession, mainly the RICS, in connection with fees and competition. The Commission's arguments were,

1. Profit maximising vs the client's interest

   The Commission considered that profit maximisation would be against the surveyor's training, ethics and long term interests due to the consequent loss of reputation.

The Commission believed surveyors would not take on jobs at prices preventing them from discharging their responsibilities to clients.

2. Quality of Service

The Commission did not accept the assumption that competition was incompatible with seeking to establish a reputation for efficiency and quality of service. In answer to the IQS argument concerning the ability of the public to assess the service provided, with or without competition, the Commission argued this conflicted with the notion that price competition should be limited to allow reputations to be established for efficiency and quality of service. The Commission concluded,

> "...If clients are unaware of and unresponsive to different standards it is difficult to see how quality of service can be a basis of competition. By and large, we think the public is able to judge; indeed many clients of surveyors have their own professional staff who are well able to assess the quality of service offered by different surveyors in private practice"

The Commission, on consideration of all the evidence, believed it was in the client's and public interest that they be allowed freedom of choice. To that end the Commission concluded restrictions on competition for fees act against the former's interests. Subsequently certain fee scales for surveying services have been abolished.

EMPIRICAL EVIDENCE ON INDIVIDUALS IN QUANTITY SURVEYING

Empirical studies of individuals in Quantity Surveying are few. Those that have been undertaken differ in their objectives and have a number of limitations. Taylor (1980) sampled lower and middle ranking surveyors (generally RICS qualified) who were salaried employees in private practice (N=58) and public service (N=20). The sample was restricted

geographically to Edinburgh. Trushell (1980) had similar limitations. His sample was geographically restricted to Glasgow and salaried employees in private practice. His sampling frame consisted of architects and quantity surveyors. Coates (1977), dealing mainly with the education of surveyors, sampled in the main RICS qualified surveyors.[2] The sampling frame consisted of private practice surveyors and those working in contracting organisations. (Total N=509). West (1980) randomly sampled RICS, CIOB and IQS respondents. Her sampling frame was predominantly builders and quantity surveyors (N=150), across a number of organisational types. Her objective was, however, primarily concerned with career choice influences.

Their findings are summarised under the following headings:-

1. Occupational drifting

   Taylor reports 56% of his sample had drifted into the profession. West reported a higher figure of 70%. Both agree that many surveyors had entered the profession based on poor information, even though the professional institutions had information readily available.

2. Occupational choice influences

   Taylor and Coates both questioned their sample on career choice influences. Responses, in order of importance, for both samples are indicated in Tables 6 and 7, although there is some discrepancy between the results, the general trend can be distilled as the nature of the job; interest and family influences on par; security and finally professional status. The 'nature of the job' forms part of a dual response to Coates' question. Professional status and the nature of the job, as a single category, are rated highest in terms of influence. However, professional status alone is rated of low importance.

3. Vocation

   Taylor reported 65% (categories 'Definitely and Probably Yes') of his sample indicating a vocation for the

Table 6 Career choice influences
Source Coates (1977:45)

Career choice influence	%
Professional status and work not office bound	56
Interest in Construction	40
Parental or other human influence	40
Relative security	23
Interest in Architecture	18
Professional status	16
Interest in Costing and Accounting	14
Dissatisfaction with other occupations	8
No outlet for abilities more suitable	8
Career Advice	7
Non response	5

Table 7 Career choice influences
Source Taylor (1980)

Career choice influence	%
No specific influence	24
Security	21
Family tradition	19
Interest	14
Status	10
Salary	10

profession. This surprisingly high figure should possibly be interpreted as post career choice justification since both Taylor and West indicated high incidences of 'drift' into the profession. Drifting does not easily equate with a 'calling'. Furthermore, Coates noted respondents declared their present work interests to be largely pecuniary. Table 8 presents Coates data on present career interests.

4. Work satisfaction

Evidence on work satisfaction is mixed. Trushell indicated that his sample of surveyors were generally highly motivated and satisfied with their work. Taylor presented a slightly less optimistic picture. He reported 36% of the sample had realised their career expectations, the majority - 59% - had realised their expectations only a little. Coates reported 25% of his respondents to be apathetic to their work. However, he noted that occupational interest increases with seniority and undertaking more progressive work. In terms of occupational reselection, Taylor reported 42% who probably or definitely would <u>not</u> reselect Quantity Surveying if given the opportunity again. Coates presented a figure of 41%. The latter noted, however, that his non selectors were disenchanted because of unfulfilled capabilities or the inequality in status of the quantity surveyor as part of the design team.

5. Task factors

The importance of task factors, in terms of work satisfaction, is supported in three studies.

Trushell noted that to motivate and satisfy surveyors, skill variety, task significance and job feedback were all essential. Taylor reported dissatisfaction related to lack of task variety and Coates reported the application of acquired skills and varied work were highly important in maintaining interest in Quantity Surveying (Table 8).

Table 8 Present Interests
Source Coates (1977:45)

Present interests in Quantity Surveying	%
Application of acquired skills	63
Varied work	59
Standard of living	50
Personal security	48
Challenging work	41
The building process	40
Intellectual satisfaction	33
The negotiating process	28
Team work	25
Contribution to the needs of society	13
Social status	11
Equity	6
Other	4
Non response	2

Coates notes 36% of respondents declared their interests have changed in emphasis over the years.

Table 9 Reasons for Association membership
Source (Coates 1977:46)
Relative importance of reasons for membership of Professional Institutions (Rank 1= Highest ranking)

	Total Sample	Graduates
Gaining client confidence	1	1
Professional status	2	5
Protection of profession's interest	2	2
Upkeep of research and development	4	2
Interchange of ideas and experience	5	4
Securing and maintaining employment	6	6
Social status	7	7

6. Background factors

Coates presented data on the influence of parental background on time taken to qualify. He classified parental occupations as practical; mainly intellectual or medial. Findings indicated that on average it took less time to qualify for those individuals deriving from the medial or intellectual groups than from the practical. Furthermore, those surveyors born between 1938 and 1947 tended to be derived from practical parents compared to those born between 1948 and 1957. The former group also tended to get more parental encouragement in career decisions.

7. Professional Institutions

Coates questioned his sample on the reasons for joining professional institutions. Table 9 presents their absolute ranking of responses. Furthermore, Coates found interest in educational policy and local professional branch activities was no more than moderate.

Chapter Summary

The Surveying profession covers a wide diversity of occupations. The present study is concerned with Quantity Surveying. Quantity surveyors have been defined as building economists (RICS 1972). The historical development of Quantity Surveying, as an occupation, is set out in Figure 7 . It is linked with that of the Surveying profession as a whole, with the RICS as the dominant professional institution representing the latter. Its Royal Charter presupposes Surveying is a single profession (Thompson 1968). However, Quantity Surveying has been recognised as a virtually separate profession (Monopolies and Mergers Commission 1977, RICS 1972). Reference has been made to five institutes representing the interests of quantity surveyors, namely, the RICS, IQS, CIOB, FAS and IAAS (Monopolies and Mergers Commission 1977). Figure 8 sets out the development of the two main institutes concerned with quantity surveyors, the RICS and IQS.

The separate status of Quantity Surveying has created an uneasy relationship with the RICS. As a specialist division, within the RICS, it has a large proportion of the membership. Furthermore, the measuring function of the quantity surveyor has a long history which is, in part, linked with the Architectural profession. This in itself has created an awareness, on the part of quantity surveyors, of a sense of identity not specifically linked with the development of the Surveying profession (Thompson 1968). This almost separate identity has been the cause of considerable dissention within the RICS. A break-away group formed the QSA in 1903 (Thompson 1968) and, in association with quantity surveyors in contracting, the IQS in 1939 (Dolan 1979, IQS 1983 a). The RICS has used a number of tactics to resist this threat to the unity of the Surveying profession. The incorporation of the QSA, by the Board of Trade, was strongly resisted. In response,the RICS formed the Quantity Surveyors Committee in 1904 (Thompson 1968, Tyrell Evans 1954). The RICS threatened court action against the IQS for using the designation 'Incorporated Quantity Surveyor' in 1948. After unsuccessful amalgamation talks, the RICS was reluctant

Figure 7 The historical development of the Quantity Surveying profession

	Date	
Great Fire of London	1666	
Venturus Manday's "Marrow of Measuring" published. First claim to professional status for measurer (albeit premature).	1682	
	1700	Architect emerges as clients representative. Moving away from patronage to professionalism. Construction becoming more commercial. Architects dissociate themselves from surveyors and builders. Term Quantity Surveyor tentatively used. Scottish surveyors more organised.
Thomas Skaife's "A key to Civil Architecture - the Universal British Builder" published.	1774	
Napoleonic Wars cause upsurge in barrack room construction.	1800	Emergence of single contractor to take total responsibility for construction.
Introduction of Portland Cement and steel as building materials	1825	Surveyors begin to dissociate themselves from builders.
J A Hunt (Quantity Surveyor) presents evidence to a Parliamentary Committee on new Houses of Parliament.	1836	
Abolition of Scottish Guild structure	1847	Architects and quantity surveyors locked in wrangling over status. Irish measurers known to be in existence.
		Term Quantity Surveyor coming into more common use.
	1900	Scottish surveyors coming under increasing pressure from English counterparts.
Continuing development of Bills of Quantities Development of cost planning techniques.	1945	

Figure 8 The historical development of the professional associations associated with Quantity Surveying

	Date	
Founding of Surveyor's Club	1792	
Founding of Land Surveyor's Club	1834	Founding of RIBA
Founding of Surveyor's Association	1864	
Founding of Institute of Surveyors (Forerunner to RICS). Common bond of railway work and land development. Eminence in field of work is membership criterion.	1868	
IoS gains public recognition in Act of Parliament	1878	
IoS gains Royal Charter	1881	Glasgow Institute of Measurers founded.
	1895	Links forged with Ireland, Irish Land Agents Committee.
IoS establishes Scottish Branch	1897	
IoS forms Professional Practice Committee	1898	
	1899	Society of Ordained Surveyors formed in Edinburgh
	1903	Dissention breaks out in IoS resulting in formation of QSA
	1913	Faculty of Surveyors in Scotland formed from amalgamation of Glasgow Institute of Measurers and Society of Ordained Surveyors.
Royal Patronage bestowed on IoS	1921	
	1923	QSA amalgamates with IoS
	1924	Irish Quantity Surveying Association amalgamates with IoS.
IoS changes name to Chartered Surveyors Institute	1930	
CSI in conjunction with three other land surveying professions develop code of ethics	1932/5	
	1937	Faculty of Surveyors amalgamates with CSI.
	1938	Dissention breaks out in CSI resulting in formation of IQS.
CSI changes name to RICS	1946	
	1970	Major amalgamation with Chartered Auctioneers and Estate Agents Institute, Chartered Land Agents Society and RICS.
	1982	IQS amalgamate with RICS.

to liaise with the IQS at working party level and advised branches not to liaise at local level (IQS 1983b,Lester 1983). However, local RICS branches eventually disregarded this directive in 1974. Pressure groups within the IQS were also in evidence. They successfully mounted a campaign to prevent amalgamation in 1976 and due to a low poll by RICS and IQS members the motion was defeated. A counter-vailing group within the IQS restarted the impetus for amalgamation in 1980-81 (IQS 1983b,Lester 1983).

In education, recruitment and training the RICS has used its dominant position to produce a general policy for these areas with a more specific specialist policy for Quantity Surveying worked out at division level. This inevitably tends to influence policy for the IQS. Quantity Surveying and the Surveying profession in particular have a complex entry system. A dual approach had been instigated and maintained to degree exemptions (RICS 1950, 1978a). Entrance requirements have undergone considerable revision in line with national educational standards. Concessions are granted depending on the nature and standard of the qualification (Lester 1983, RICS 1960, 1978a).

Furthermore, there has been a consistent preference, both at an institutional and membership level, for part-time routes to qualification, (RICS 1950, 1978a, 1979b, 1983). Healey (1975) has reported no fewer than six routes of entry to the IQS. However, the RICS are facing problems with education, recruitment and training. In response to the Brett-Jones Report (RICS 1978a)the membership emphasised the highly practical nature of the profession. The member-ship were reluctant to see examination responsibilities placed in the hands of academics and they felt greater consideration should be given to those undertaking part-time routes to qualification or those with technical qualifications (RICS 1979b). A number of other points are also worthy of consideration. First, the Brett-Jones Report (RICS 1978a) indicated the EEC may force the RICS to adopt a full-time route to qualification. Second, employers have been reluctant to grant day release facilities for candidates (RICS 1983). Third, the examination system of the RICS has

also been heavily criticised for high failure rates at each successive stage (RICS 1978a). Fourth, the RICS may have created a problem for themselves with the emphasis on 'on the job' training. It has been stated (Thompson 1968) that in the past the RICS had adopted an approach of allowing others to undertake the training function and influence what was taught through the examination system.

The Institutions's wishes for the development of training and education have not reached fruition. Education for surveyors had until the 1950s involved 'learning facts'. In the 1960s the emphasis shifted to 'learning principles' for application in professional practice. The importance of higher education was recognised especially in terms of status for the profession with the emphasis moving towards graduate entrants (RICS 1960, 1967). Corporate membership of a professional institution was seen as an additional status to that of a degree (RICS 1970). However, by the late 1970s the picture had changed considerably. The profession was reluctant to accept full-time education and the competence of graduates had been severely criticised (RICS 1978a,1979c,1982). Members of the profession were, in turn, not facing reality. They failed to appreciate the rights of educational establishments to design their own courses and they did not have realistic expectations of the capabilities of graduates (RICS 1978a,1982). The dilemma facing the RICS is summed up in Figure 9 . Their entanglements with the EEC have added to the problem. Corporate membership of the RICS has been recognised as equivalent to first degree standard (RICS 1980). This was in response to a refusal by the Projects Directorate of the EEC to recognise that Chartered Quantity Surveyors, without a degree, were acceptable for employment in their advertised posts (RICS 1977).

The knowledge base of the profession has also been referred to. Quantity Surveying is a profession of generalists with a considerable emphasis on experience and a practical base (RICS 1974, 1979b). The core constituents of Quantity Surveying have, within the bounds of some consensus, been

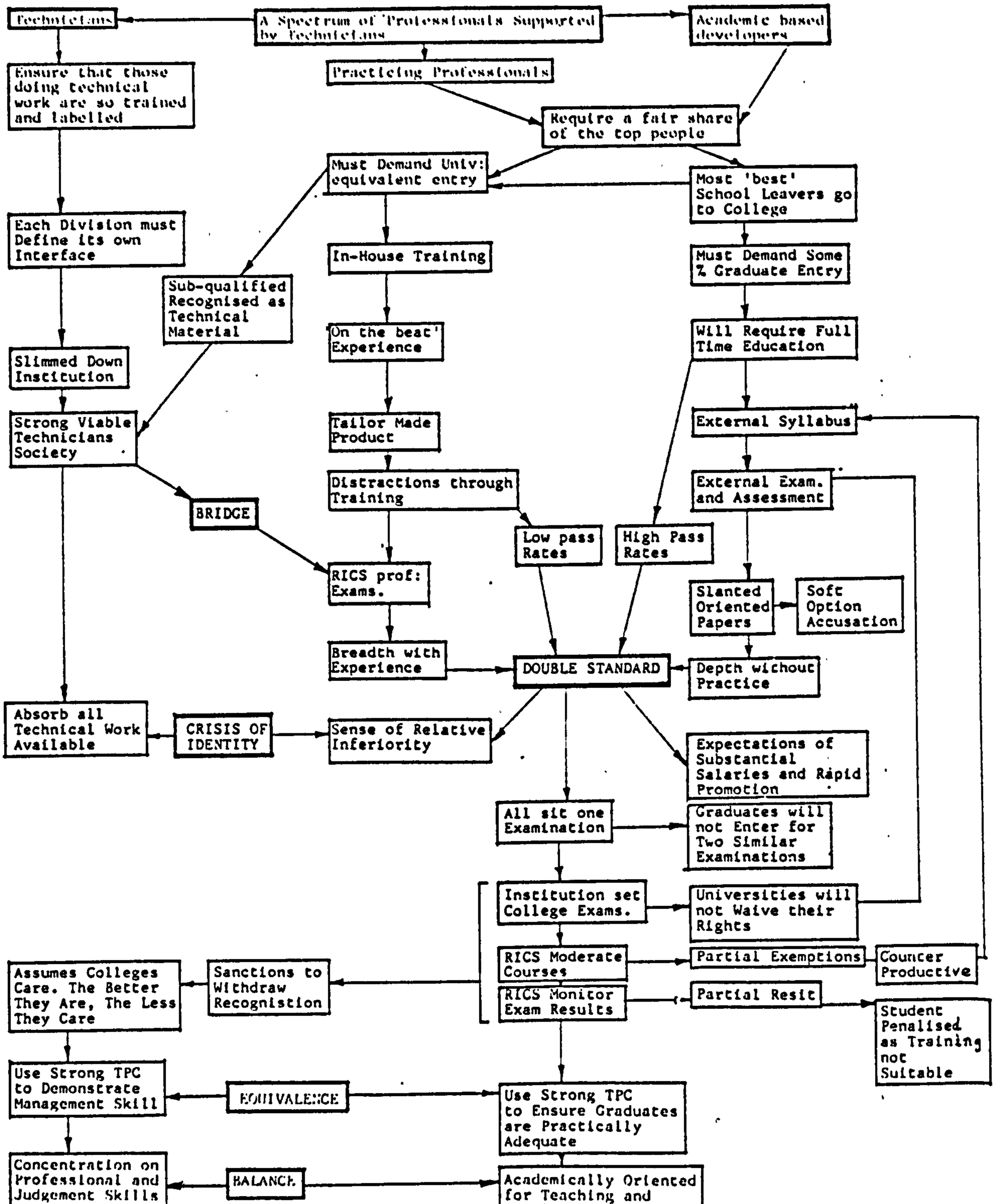

Figure 9 The Dilemma Facing the RICS on Graduate Entry
Source: RICS(1978:23)

set out (Bennett 1977, RICS 1982). However, it has been admitted there is a lack of an adequately defined academic discipline for Quantity Surveying (RICS 1978a,1979c, Skoyles 1979). Furthermore, the research dimension, of considerable importance for the development of a knowledge base, is lacking in the profession (RICS 1978a,Skoyles 1979). This was attributed to a number of reasons. First, lack of opportunity or incentives for research (Skoyles 1979). Second, failure on the part of the profession to accept research as counting towards corporate membership and the belief, from some quarters, that individuals working in research were not entitled to the status of a Chartered Surveyor (RICS 1978a,1979b). The expansion of the knowledge base in the list of research priorities for the RICS is low (RICS 1980). The profession also lacks a commitment to teaching and it has been admitted that the profession is not education conscious (RICS 1960, 1967, 1970). In an attempt to improve the situation there has been a move towards compulsory post qualification structured learning (RICS 1967,1978a). However, although accepting this in principle, the profession was reluctant to accept the compulsory aspect and some have viewed it as an attack on their integrity.(RICS 1979b).

The professional standing of Quantity Surveying has been explored. There is a considerable body of rhetoric in the journals and reports, produced by the profession, on the nature of a profession and professional men (Denning 1971, Scarman 1972, Heap 1973, Benson 1980), professionalism (Howes 1980, RICS 1970) and integrity (Male 1977, Tyrrell Evans 1954). A sustained attack on the professional standing of Quantity Surveying has come from the Monopolies and Mergers Commission(HMSO 1977). Other evidence on the status of Quantity Surveying has also been reviewed. Construction analysis and measurement underpins the whole of Quantity Surveying (IQS 1970, RICS 1982). However, the role of the quantity surveyor has shown elements of expansion (RICS 1970, 1971, 1979a, IQS 1976). Higgins and Jessop (1965) concluded the measuring function was less than a full professional role and it was only with the emergence of cost planning and cost

control that the quantity surveyor could lay a claim to such status. The RICS by their own admission note measurement is of a largely routine and technical nature (Monopolies and Mergers Commission 1977). The expanding role of the quantity surveyor, suggested by the RICS, has been heavily criticised by the Institute of Quantity Surveyors (IQS 1970).

The function of Quantity Surveying is not well understood by school leavers or the general public (Edge 1975, Coates 1977). Quantity Surveying does not share the self esteem of other professions (Coates 1977) and recruits to certain educational establishments have been found to have a mis-directed sense of vocation (Coates 1977).

A number of research studies dealing with different aspects of Quantity Surveying have been reviewed. There is evidence of drifting into the occupation (Taylor 1980, West 1982). The nature of the job has been suggested as an important reason for joining the profession (Coates 1977, Taylor 1980). Approximately 40% of respondents in two studies would not reselect Quantity Surveying given the opportunity. One important reason has been the inequality of status of the quantity surveyor in the design team (Coates 1977, Tayor 1980). The primary reason for membership of a professional institution has been reported to be for gaining client confidence. Furthermore, in the same study interest in educational policy and local branch activities was found to be low (Coates 1977).

The diverse organisational settings within which quantity surveyors practice have repercussions for professional status. The structuring of the work environment has implications for staff morale (Turner 1979). In the private sector organisational size has a positive relation-ship with increasing formalisation of organisational structures. The smaller practices tend to be involved in non-mainstream Quantity Surveying activities and have problematic workloads. In the public sector the quantity surveyor is at a disadvantage. In local government the quantity surveyor is subservient to another profession

whilst in the Civil Service top Quantity Surveying posts are normally two grades below top Architectural positions. Those working in government departments will normally be involved in recommending and supervising consultants (RICS 1974).

Clients to the construction industry are complex organisational systems and have been designated naive or sophisticated (Higgins and Jessop 1965, Crichton 1966). There is a diversity of client types and they will either be advised by an Architect or have their own quantity surveying staff. Furthermore, clients are in an economically more powerful position than Quantity Surveying practices (Monopolies and Mergers Commission 1977, NEDO 1983). There is a strong correlation between organisational size and direct appointment by public sector clients and between organisational size and frequency of recommending contractors and architects, especially in the public sector (RICS 1974).

The following chapter explores in greater detail the nature of a profession and reviews a number of models that can be used to investigate the occupational status of Quantity Surveying.

Chapter Notes

1 Table 10 RICS Divisional Membership
Source RICS Yearbook 1982

	Fellows & Professional Associates	Students, Probationers & Housing Managers	Totals
Quantity Surveying	12 511	4 712	17 223
Building Surveying	2 952	1 867	4 819
General Practice	21 903	6 414	28 317
Land Agency and Agriculture	3 668	591	4 259
Land Surveyors	761	570	1 331
Mineral Surveyors	495	279	774
Planning & Development	1 106	228	1 394
TOTALS	43 396	14 721	58 117

2 Millerson (1964) placed a slightly different perspective on the Institute's formation. He noted the precipitating factor for the formation of the RICS was the mid Victorian upsurge in land development, estate management and valuation. Without this the formation of the RICS would not have occurred. There was a considerable number of Private Bills passing through Parliament sanctioning town improvements, public works and compulsory purchase of land. This created the need for skilled surveyors and land valuers. Land and Quantity Surveying were already firmly established.

3 Millerson (1964) noted that the four land surveying professions co-operated, from 1932 onwards, on producing a code of conduct. Until this time ethical codes had remained more or less unwritten or uncodified. The main impetus came from the Chartered Surveyors Institution (predecessor to the RICS). It insisted on the three associations producing and securing uniformity of action. A Code of Conduct Liaison Committee was established and a basic code agreed. Each association was then able to adopt the code of rules separately. In 1935 the four associations produced a revised set of schedules of charges common to all bodies. However, each association maintained specific scales applicable to itself.

Table 11 sets out a comparison of IQS and RICS codes.

Table 11 Codes of Conduct for the RICS and IQS
Source Adapted from Millerson (1964 Table 6.1:167)

	IQS	RICS
Professional client	Must maintain professional or standard agreements Must not solicit or seek to supplant a professional colleague	Must maintain professional or standard agreement Must not solicit or seek to supplant a professional colleague Must not avoid responsibility by forming a company
Professional professional		Principal must be responsible for juniors Must not secretly engage in another occupation which brings work or may compromise position Must not encroach on legitimate work of other professions
	Must not receive or give commissions or discounts	Must not receive or give commissions or discounts Must only share remuneration with partners/employees
	Must not advertise except in prescribed ways	Must not advertise except in prescribed ways
Professional public		Must uphold the dignity of profession and/or honour and dignity of association

4. Membership of the IQS at 31/12/75 (IQS 1976)

Fellow and Associates	Graduates, Probationers	Subscribers & Members	Total
4777	4118	128	9023

Approximately 600 Fellows or Professional Associates of RICS are also Fellows or Associates of IQS.

5. Chiefly Land Agency; Chiefly Valuation; Chiefly Building.

6. Land Agency; Valuation; Building and Quantities; Mining. The number of examinations to be undertaken by entrants was also revised. Those in Quantity Surveying were required to pass the Intermediate, Final Part 1 and Final Part 2 to become qualified. Furthermore, on reviewing educational policy in 1939, the RICS required the individual to have completed four years' practical experience prior to sitting the Part 2 examination. Two of the four years to have been spent in an office approved by the Institution (Thompson 1968).

7. General Section; Agriculture and Land Agency; Quantity Surveying; Mining Surveying and Land Surveying.

8. The revised 1975 syllabi grouped examinations into four areas. Technology; Building and Civil Engineering Measurement; Management and Professional Practice; Applied Economics and Law.

CHAPTER 3

PROFESSIONS AND PROFESSIONAL MODELS

THE PROFESSIONS

Introduction

Professions are about influence, power and status. Historical and current evidence will be presented to validate this statement and highlight those crucial factors that have been necessary for the sustained privilege of certain occupations. Other occupations, whilst laying claim to professional status, have been unable to raise themselves to the elite levels of the clergy, the law and medicine. In the sentiments of Carr-Saunders and Wilson (1933) they have never gained access to the coveted inner circle.

The Concept of Profession[1]

Millerson (1964) sets out a number of principles essential to the understanding of the concept of profession,

- A profession is a higher grade, non-manual occupation with the intellectual or practical technique dependent on a substantial theoretical training.
- The designation of profession refers to a comparative status level between occupations. It is not a permanent monopoly of a few occupations and is attained after deliberate action by an occupation.
- Professional status may possess a dynamic quality depending on changes in social and economic circumstances surrounding the determinates of status.
- Organisation does not make an occupation a profession. Conversely, an organised occupation may not be a profession. To provide a competent service the practitioner must gain knowledge (in a well defined area of study or practice) and experience in the application of that knowledge. Competence can be assessed by actual performance or through standardised occupational examinations.
- Professional or non professional status is not determined by the presence or absence of a code of conduct. The nature of the professional task and the

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* See Chapter Note 1 for a profusion of definitions.

professional situation determines the degree of control required.

- Professional status is acquired by subjective (the collective membership) and objective (the user of the service and the general public) recognition of occupational status. Recognition may take the form of higher incomes and delegation of responsibility or authority to occupational members.

These principles provide a base line for understanding the development of professions but to a degree, in the words of Elliot (1972), they provide "...form at the expense of substance" (p.139). An understanding of the substance can be found in a brief exploration of the historical impetus for the professions.

The Historical Impetus

Professions in pre- and post-industrial society differed sharply in their characteristics resulting in two types of professionalism. Status professionalism associated with occupations at a high level in the social structure but of little importance to the organisation of work or community services. Occupational professionalism is associated with specialisation of knowledge and tasks. Post industrial professions are derived from their pre industrial counter-parts based on the decline of status and the rise of occupational professionalism (Elliot 1972). Many of the early professions evolved from the Church, law and medicine (Carr-Saunders and Wilson 1933, Millerson 1964). Furthermore, the notion of profession was usually associated with the image of the 'gentleman' (Carr-Saunders and Wilson 1933, Elliot 1972). However, Millerson (1964), criticises this idealised image on three counts. First, respectability for the professions only emerged in the 18th Century and was consolidated in Victorian times. Second, compulsory tests of competence were applied relatively late, circa 1830. Third, the high prestige of the three traditional professions was not solely dependent on control over the profession and the nature of the service. Practitioners often had

considerable involvement in local affairs and the legal and medical professions provided considerable opportunity for social mobility.

Portwood and Fielding (1981) argue that contemporary professions are as much a product of the past as the present. They use the term 'unresolved dialectic' to refer to the fact that the professional is, at one and the same time, expected to be a gentleman (the historical image) and an expert (the present situation). The growth of professions during the post industrial period has made them a possible major force within the framework of society.

Professions as Institutions

The professions have been viewed as a stabilising force in society (Carr-Saunders and Wilson 1933). Elliot (1972) believes the professions serve the important function of managing conflict and crisis in society. However, by undertaking this function they and society are part of an interdependent network. Elliot believes it is this lack of self sufficiency that confronts the professions with one of their fundamental problems. Elliot continues,

> "...The professions are divided among themselves by subject, tradition and status. Different types of training, association and employment situation are to be found between and within different professions. The individualism of the professional career acts as a divisive force within each profession. The continuing decline of private practice may have the effect of removing one of the basic divisions within and between professions, but it remains to be seen whether common experience of employee status will change the basic values of professionalism." (p.143)

The vulnerability of the professions is exemplified in the following quotation,

> "...The upshot is that a profession is by nature a vulnerable institution. It makes claims; it demands unique privileges; and it has to perform. But 'it', of course, does not exist as a single entity; it is a dozen or a few hundred or many thousands of individuals, who differ as widely as all other human beings, yet who, as professionals, are expected to act in a standard manner and to be invariably successful in their art. At this point

one might conclude that a profession was not merely vulnerable but naturally unstable, a scheme beyond human strength to live up to... Nonetheless, professionals of all kinds have existed for thousands of years, and it is this apparent continuity that gives them the illusion of immortality. What every professional should bear in mind is the distinction between a profession and a function. The function may well be eternal; but the profession, which is the cluster of practices and relationships arising from the function at a given time and place, can be destroyed - or can destroy itself - very rapidly" (Barzun 1978:68).

As institutions, of apparent immortality, the professions have given the sociologist the most trouble and the most fertile ground for theory, counter theory and confusion par excellence.

The Sociology of the Professions

The drive towards professional status for many occupations has provided the sociologist with two fundamental questions. First, the extent to which professional occupations could be regarded as a unique product of the division of labour in society - be it economic, political or social (Johnson 1972). Carr-Saunders and Wilson (1933), in their classic and oft quoted study, believe the rise of a profession is inevitable where a technique is specialised. Professional cohesiveness, the detailing of the social structure within which professions play a part, or the social organisation of a given profession have, according to Bucher and Strauss (1961), been the main focus. However, it would require a full comparative social and historical analysis to understand the professions. This would probably highlight similarities but major differences exist among professions in different societies and at different historical times (Barber 1963). The consequence for the sociology of the professions has been that many of the inconsistent findings are due to the fact that research has concentrated on different professions at different points in time. Furthermore, research has also failed to take account of any contradictory processes that may have existed in the development of a single profession (Johnson 1972). Therefore,

> "...the result has been a confusion so profound there is even disagreement about the existence of confusion" (Johnson 1972:72).

In view of the existence of such confusion the analysis of literature will be restricted to issues raised in Millerson's guiding principles (see p. 83) and the stance adopted by Johnson (1972) that a profession is not an occupation but a means of occupational control.

Occupations and Professions

Turner and Hodge (1970) define an occupation in terms of the similarity of activities carried out within a general scheme of the division of labour. Similarities may exist without there being any social relationships between individuals. Furthermore, it is not necessary for individuals to perceive these similarities. Turner and Hodge consider, in theory, the only limitation on the number of occupations is the degree of analytic distinction that can be made between the types and properties of activities undertaken by individuals. Cullen (1983) in an empirical attempt to differentiate occupations and professions, using dimensions of professionalism, found his sample of 203 occupations clustered into three groups representing, to some degree, conventional views on the nature of professions. The first cluster consisted predominantly of a small group of medical occupations, to a large extent self employed. The second cluster contained most of the accepted professions employed in formal organisations whilst the third, and largest cluster, consisted of occupations scoring low on all dimensions. Cullen concluded theorists and researchers are not entirely wrong in assuming that professions are unique occupational types. However, a number of cautionary notes are required. First, Cullen admitted that certain occupations have attributes closer to occupations in other clusters than their own. Second, he further admitted some occupations usually classified as professions by some researchers were missing from their expected clusters. Third, Cullen's research was based on the 'attribute' or 'trait' approach which has come under serious criticism (to be discussed later under models of professions).

Harries-Jenkins (1970) confirms the manifest problems of differentiating professions from the general occupational milieu. Many occupations define such a large expanse of work as their domain that non-occupational members are unable to evaluate the nature of the task being undertaken. This is especially common in those occupations requiring specialised knowledge. Furthermore, as a direct consequence the group will then be allowed to evaluate the work carried out. Inevitably, specialisation becomes equated with professionalisation. There is a resulting claim to professional status by the occupational group, invariably on the grounds that they, and they alone, have the specialised skills and knowledge to undertake the task.

Barber (1963) suggests that the difference between an occupation and a profession is one of degree. He argues that no absolute difference can be found between professional and other kinds of occupational behaviour, only relative differences with respect to certain attributes common to all occupational behaviour.

Summarising the above, occupational specialisation is related to the division of labour, often being equated with professionalisation. Certain attributes differentiate occupations from professions but it will be a question of degree.

There are, however, social consequences for occupational specialisation. These include relationships of social and economic dependence and, paradoxically, social distance. Social distance, in turn, creates a structure of uncertainty between the producer and consumer of goods and services (Johnson 1972).

It is structural uncertainty which lies at the heart of professional activity and may be manifested in an ideology of professionalism. An ideology common to professional and would-be professional groups alike.

Professionalism[2]

Professionalism has been a powerful middle-class ideology for two hundred years. The practical impact isaquest for

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*See chapter note 2 for definitions

self governing autonomy by occupational associations with a view to gaining control over practitioners and recruitment (Parry and Parry 1977). Elliot (1972) agrees with the foregoing argument but couches it in terms of occupational self sufficiency. For Elliot the pursuit of self-sufficiency is an pursuit of occupational power, within certain limits. Professionalism can, therefore, be said to be a strategy (Layton 1971) for gaining occupational power. As an ideology it has a certain dignity since the professional renounces, at least verbally, any form of selfish behaviour. Furthermore, it gains group advantages on the pretext of protecting the public (Layton 1971). Gordon and Ross (1962) add weight to this argument when discussing professionalism and the engineer. The ideology has been advanced as a reason for joining or not joining a union, to promote employee solidarity and differentiation and to promote identification with or distinguish them from management. In short, Gordon and Ross conclude, there has been so much confusion created by professionalism that it can be used to justify the differing positions of any interest group.

Professionalism can be considered the extent to which an occupational group believes it has attained professional status (Harries-Jenkins 1970). The pre-requisite is the desire to associate and the ability to do so (Carr-Saunders and Wilson 1933). However, there is growing empirical evidence that it is multi-faceted (Hall 1969, Schriesheim 1978) and as such can be conceptualised as a series of interlocking continua - Figure 10

Schriesheim (1978) developed a psychological measure of professionalism utilising six dimensions isolated from the literature by Kerr, von Glinow and Schriesheim (1977). Using a sample of respondents (N=129) in an engineering division of a public utility she found the following

- The separate dimensions of professionalism covary differently indicating it to be a multi dimensional construct. Therefore, utilising an overall professionalism score may well mask important differences among professional attitudes.

Non-professional		Professional
Technical, Craft skill	Knowledge	Broad, Theoretical knowledge used in
Routine	Tasks	Non-routine situations to reach
Programmed	Decision-making	Unprogrammed decisions according to
Ends decided by society (or other institutions)	Authority	Ends (derived from knowledge) decided for society (or institution within it) and supported by
Other or non-work	Identity	Occupational group because work and occupation are
Means to non-work ends	Work	Central life interest and are also basis for
Occupational/ Class advancement	Career	Individual achievement which involves meeting initial entry qualifications through
Limited	Education	Extensive education, showing skill and meeting other latent status requirements involved in the
Specific	Role	Total role (that is expectations extended beyond expertise and work situation)

Figure 10 Continua in the Professional Ideal Type
Source Elliot (1972:96)

- There was no conclusive evidence about differences between graduate and non-graduate engineers, although self-selection and small sample sizes were suggested possible causes.

- A weak non-significant relationship between professionalism and father's socio-economic status. The lack of strong relationship was attributed to restrictions on sample ranges, differing effects of adult and childhood socialisation processes, differing time perspectives on status measures or the fact that the relationship may only hold for traditional professions.

Closely allied to the concept of professionalism is that of professionalisation. In general terms professionalism is the ideology adopted by an occupation as it proceeds through a process of professionalisation to become a profession.

Professionalisation[3]

Hall (1969) believes professionalisation to be a two-way process. The occupation must take action to become a profession but the public at large must accept it as such. The action usually taken by an occupation may involve a combination of establishing ethical standards, establishing full-time educational establishments and organising around occupational associations that will probably certify competent practitioners.

Hickson and Thomas (1969), utilising Millerson's (1964) work on Qualifying Associations, attempted to establish an empirical scale of professionalisation - Table 12. The results indicate that it is probably a uni-dimensional construct rather than multi-dimensional. However, the results are tentative for several reasons. First, Hickson and Thomas have, by their own admission been selective in the dimensions scaled. They have omitted two components often cited as important in the literature on professions; 'skill' based on theoretical knowledge and 'altruistic service'. Second, they concede that the results may well

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*See chapter note 3 for definition

Table 12 Professionalisation Scale Scores
Source Hickson and Thomas (1969:47)

Qualifying Association (N=43)	PROF SCALE SCORE	AGE AS AT 1967	NO OF MEMBERS (IN 100s)
Royal College of Obstetricians and Gynaecologists	13	38	13
Royal College of Physicians of London	13	449	52
Royal College of Surgeons of England	13	222	135
College of General Practitioners	11	15	67
Institute of Civil Engineers	11	149	303
Law Society	11	142	182
Royal Institute of British Architects	11	133	204
Institution of Electrical Engineers	10	96	512
Town Planning Institute	9	53	45
Inns of Court	9	667	20
Institution of Mechanical Engineers	8	120	580
Institute of Chartered Accountants	8	87	365
Chartered Institute of Secretaries	8	76	287
Royal Aeronautical Society	7	101	112
Institute of Marine Engineers	7	68	155
Institute of Physics and the Physical Society	7	49	83
Chartered Society of Physiotherapists	7	73	172
Chartered Auctioneers and Estate Agents' Institute	7	81	104
Royal Institution of Chartered Surveyors	7	99	262
Institute of Quantity Surveyors	7	29	43
Institution of Production Engineers	6	46	135
Institution of Metallurgists	6	22	62
Pharmaceutical Society	6	126	188
Association of Certified and Corporate Accountants	6	63	111
Textile Institute	5	57	74
Institute of Medical Work	5	64	18
Society of Chiropodists	5	22	37
Royal Institute of Chemistry	5	90	160
Institute of Transport	4	48	108
Institute of Biology	3	17	32
Institute of Bankers	3	88	604
Library Association	2	90	119
Institute of Welding	2	44	51
Royal Institute of Naval Architects	2	107	47
Society of Radiographers	2	47	52
Chartered Insurance Institute	2	70	493
Corporation of Secretaries	2	43	102
Advertising Association	2	41	5
Institution of Railway Signal Engineers	1	55	15
Institute of Marketing and Sales Management	1	56	101
Institution of Works Managers	0	36	51
British Institute of Management	0	20	158
Institute of Company Accountants	0	39	51
Range	0-13	15-667	5-604
Mean	5.9	94	153
Standard Deviation	3.72	113	153

be different if attitudinal data were used. In fact, the result should be considerably more complex. Third, with specific recourse to the example of Quantity Surveying, the two professional institutes (RICS and IQS) score equally on the professionalisation scale. This is not surprising since founder members of the latter were former members of the RICS. Therefore, higher professionalisation scores can be attributed to the IQS on the grounds of identical organisational functioning and bear no relation to the linear process of professionalisation often hypothesised in the literature. This may well be the case for other Institutes scaled by Hickson and Thomas and adds weight to consideration of internal divisions within occupations. Fourth, taking into account political manoueverings among occupational associations, the scale may well be a mixture of lineal progression, status and power. A view tentatively supported by Harries-Jenkins (1970) who notes there is a correlation between professionalisation and status at the extremes but a considerable grey area in between.

Harries-Jenkins concludes the educational process is too complex to make categorical statements about the level of professionalisation for occupational groups. He does, however, concede a high level of professionalisation can be attributed to those occupations limited to exclusive graduate entry. A low level of professionalisation is associated with those groups having non graduate entry and offering considerable exemptions from intermediate and, more importantly, final examinations. He further concedes that high professionalisation is associated with the service ideal. Montagna (1968) in his study of Chartered Public Accountants, considers the impetus for professionalisation comes from movement into new areas of uncertainty as old practices become routinised.

Johnson (1972) considers professionalisation to be a term, developed by sociologists, to resolve the problem of the manifest differences in the prestige attached to certain occupations, such as law and medicine at the top level and others, such as teaching and social work at a lower level of prestige.

Qualifying Associations

The professional world is generally organised on a craft basis. There are two motives for organisation. First, to differentiate the competent from the incompetent and foster the study of the technique. Second, to a lesser extent, protection of members, (Carr-Saunders and Wilson 1933).

A Qualifying Association is one of six types of professional association (Millerson 1964). It has the function of

- the advancement of a subject area and/or the technique involved in practice.
- to qualify.
- to control professional conduct.
- to raise professional status.

In the period 1910-1950 Qualifying Associations were forming at a rate of approximately two dozen in each decade. The distribution of the most numerous is as follows,

Function	N
Engineering	18
Accountancy	8
Surveying, Auctioneering, Valuation	8
Management and Administration	8
Insurance	4

The above together with the auxiliary medical services, accounted for approximately 50% of all associations in England and Wales in 1964 (Millerson 1964).

A Qualifying Association can be considered a Mutual Benefit Association (Blau and Scott 1963). The membership is the ppime beneficiary. The crucial issue facing a Mutual Benefit Association is the maintenance of internal democracy. It faces two problems; first, the question of membership apathy and second, oligarchic control. The two problems are related by the fact that activists run the association and are invariably voted into positions of power by other activists. The system inevitably becomes self-reinforcing due to continued member apathy.

The idealised image which the association attempts to project is usually closer to reality at the time of origin when there was perhaps a struggle for existence (Blau and Scott 1963). A Qualifying Association, has in a number of studies, been taken as a reliable indicator of the extent to which an occupational group is professionalised. The establishment of an Association is normally taken to be the starting point of the professionalisation process and proceeds in a chronological sequence of events. Other studies have utilised the type of professional association formed as an indicator of professionalisation. However, methodological problems abound (Harries-Jenkins 1970),

- The occupational group may be represented by more than one type of association. Consequently there will be classification problems.
- Society may place a status value on the conferred qualification. Length of training can be assessed quantitatively but not qualitatively for any given Qualifying Association.
- Qualifying Associations may vary in the extent of entrance and behaviour control.
- Occupational groups exist that are normally considered to be highly professionalised but do not have Qualifying Associations.

The foregoing comments also cast doubt on the empirical scaling of professionalisation undertaken by Hickson and Thomas (1969) since their measure was based entirely on an analysis of Qualifying Associations.

<u>Recruitment, Education and Training</u>

1. Recruitment

The status professions of medicine and theology have maintained very close links for recruitment with the older universities of Oxford and Cambridge. Furthermore, these professions have a high predominance of public school recruits. These educational establishments are perceived to be of high status and have helped to ensure

that professionals are recruited from high status groups in society (Elliot 1972).

The Robbins Report (1963) states that a major proportion of members from the four largest Qualifying Associations[4] had finished full time education before the age of eighteen; also, a large proportion had not been educated in state secondary schools - Table 13 .

Table 13 Proportion of school leavers by major Qualifying Associations
Source Robbins Report (1963)

Institution	Proportion leaving school at 18	Proportion attending independent or direct grant schools
	%	%
Royal Institution of Chartered Surveyors	74	31
Institute of Chartered Accountants in E&W	64	50
Chartered Institute of Secretaries	82	30
Law Society	41	63

In the scientific and technological disciplines and their associated professions there is considerable diversity of social background (Elliot 1972). Research undertaken by Gerstl and Hulton (1966) supports this view. This study was specifically concerned with members of the Institute of Mechanical Engineers. The authors report 25% of graduate members and approximately 50% of non graduate members of the Institute had fathers in manual occupations. However, 40% of graduate members came from professional or executive backgrounds; the corresponding figure for non graduates was 20%. In comparing the younger and older age groups Gerstl and Hulton found

there was a tendency for the socio-economic composition to widen during this century. The incidence of self recruitment was low, only 4% had fathers who were engineers. Furthermore, the data indicate a diversity of type of work, work setting and routes of entry.

2. Education

For the status professions, the thrust of the education process in the 19th Century was in the testing and developing of the general ability of the individual. Education was concerned with developing the whole man and learning a specific expertise was postponed until afterwards. However, education for the occupational professions was predominantly concerned with vocational learning and an emphasis on skill acquisition for practice (Elliot 1972).

The educational system for the professions remains complex. Carr-Saunders and Wilson (1933) distinguish three types of process. The uniportal system, where a profession has only one route to qualification. The multi portal system[5], where a profession has several routes to qualification and the intermediate system lying between the other two. Harries-Jenkins'(1970) classification is more detailed than the preceding groupings. He distinguishes,

- Graduate entry only. This can be exclusive or concessional (ie complete exemption dependent on degree curriculum and can be either total or partial).

- Non graduate entry which includes graduate and other qualifications. Basic entry requirements are 0 and A levels with concessions granted to degree holders. Other qualifications may also be granted considerable exemptions.

The complexity of the process does, according to Harries-Jenkins, provide no clear indication of the extent of professionalisation.

Within the professional framework the educational system acts as an intervening mechanism between social status origins and future occupational position. Figure 11 is essentially a static representation of an essentially dynamic process.

3. Training

Professional work is complex, non rationalised, yet in part recorded and specified. Training is, therefore, a key element and specifically involves a process of teaching job related skills and knowledge (Mintzberg 1979). Training is intimately bound up with the educational process and varies considerably from profession to profession and over time,

> "...Traditionally, the basic method of professional training was the apprenticeship method, that is 'learning by doing' or 'on the job training'. This differed to a very limited extent from the method of education and training which was adopted for the acquisition of craft skills. Subsequently, examinations were introduced as a test of professional competence, although a typical pattern of development was one in which these examinations supplemented, rather than replaced, the principles of apprenticeship. The realisation that such tests, carried out in an atmosphere of part-time study, were an inadequate assessment of the amount of theory which the member had acquired, has led occupational groups to recognise the importance of a full-time educational process. The typical pattern of education and training for a professional group, today, is thus one in which the required body of systematic theory is obtained by individuals in a formal academic environment" (Harries-Jenkins 1970:74).

The Knowledge Base

The knowledge base is usually accorded an important place in the literature on professions. It has implications at two levels. It operates at the occupational level where it represents the accumulated wisdom of the profession. It also operates at the individual level where theory is put into practice. However, each has separate implications for practitioners.

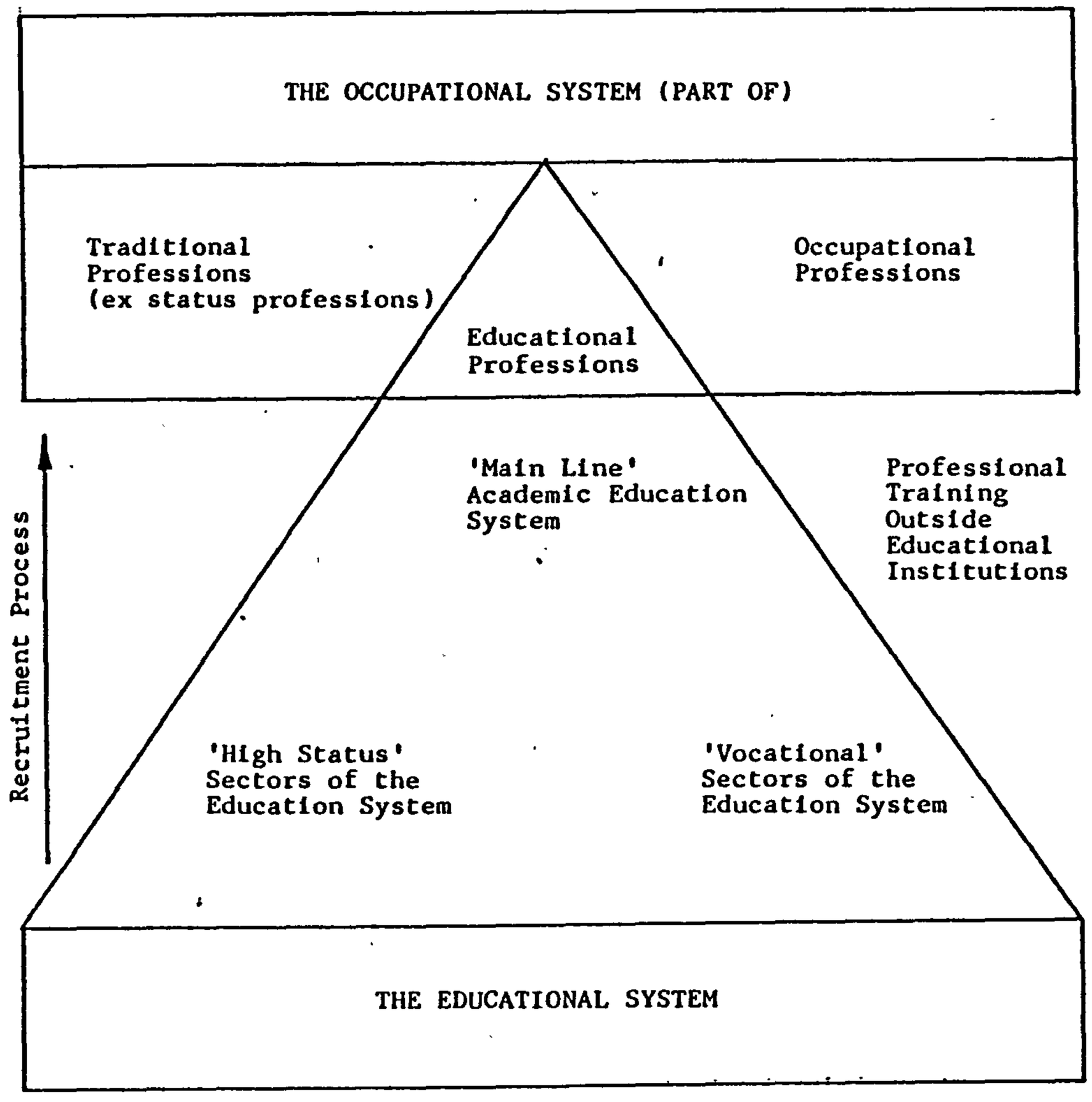


Figure 11 Systems of Social Selection
Source: Elliot (1972:62)

At the occupational level it is a source of occupational power (Blau and Scott 1963, Elliot 1972). The knowledge or theory rests on expertise in areas of uncertainty. However, this renders the power unstable since increasing knowledge decreases uncertainty. This is in complete accord with Montagna (1968), cited earlier, who believes the impetus for professionalisation comes from moving into new areas of uncertainty. Furthermore, there is a close relationship between theory, skill and professionalisation. The practice of a skill can exist independently of any body of theory. Practitioners would then be classified as 'craftsmen' rather than 'professional'. The greater the link between theoretical knowledge and skill the greater the professionalisation (Harries-Jenkins 1970). In practice is the picture this clear? The knowledge base may often be a mixture of practical and theoretical knowledge (Hughes 1963). Any claim to special knowledge or conscientiousness can, in practice, be made by any occupational group. The issue is mainly one of degree (Friedson and Rhea 1965).

The picture, at the occupational level, therefore, is one of blending theory and practice whilst maintaining a power base through uncertainty. However, at the individual level, the practitioner has a very personal relationship with his professional knowledge. He has probably undertaken a prolonged period of education and training and through his natural abilities acquired a substantial but not totally complete assimilation of the profession's knowledge base. Knowledge is, therefore, largely an individual property. The application of knowledge is basically an individual act and as such the professional has ultimate responsibility for his decisions. It is the exercise of judgement, in areas of uncertainty, that frequently underlies professional demands for immunity from social pressures and allows professionals to take risks without the social repercussions of failure (Etzioni 1964).

The importance of uncertainty to the profession and the professional is reflected in Montagna's (1968) study of CPA's. He discovered that formalisation of much of

professional practice into rules and written procedures meant knowledge had passed from an intellectual to a mechanical technique,

> "...The power of the expert disappears as soon as the area uncertainty (professional judgement) can be translated into rules and programs" (p.143).

The response by practitioners and firms of CPAs was to expand into new areas of uncertainty. The firm and the individual gained new knowledge and techniques for professional judgement. However, the organisation suffered adverse consequences. These movements into new areas of uncertainty required individual organisations to develop their own codes of ethics and procedures until the slower moving professional associations eventually incorporated these innovations in practice into profession wide norms.

At the social and occupational level the degree of structural uncertainty gives rise to institutional forms in an attempt to reduce uncertainty. Power relationships will determine if the uncertainty is reduced at the expense of the consumer or producer. Specialist esoteric knowledge (ie. mystique) becomes a significant element in producing variations in the degree of uncertainty. The extent to which this variation is possible will create the potential for occupational autonomy (Johnson 1972).

Professional Conduct and Professional Behaviour

The emerging attitude in the 19th Century, towards professional behaviour, appears to be one of trust and faith in personal integrity. Although competence was assessed by examination there was a feeling, in professional associations, that there should be a flexible clause, in the Articles of Association, to allow incidents of misconduct to be investigated. Should a charge be proved, the Association wanted to reserve the right to expel the guilty member (Millerson 1964).

Professionals are usually accredited with altruistic motives. However, it has been argued (Hall 1969) this is only one side of the coin. Hall believes the growth of professions can be attributed to altruistic and selfish motives.

The selfish motive becomes evident through a concern for improved status and economic bargaining power as an organised group. Furthermore, the professions are able to exert control over the labour market by exclusion of the unqualified. This in turn enhances their position within the division of labour. The altruistic motive surfaces in a desire, by some members of the profession, to improve the service and performance of members through stricter entrance requirements and codes of conduct. Hall concludes however, that whichever motive is dominant, both will have occupationally beneficial results.

Haga (1975) is less benevolent than Hall. He bluntly concludes intimidation is the essence of professional behaviour. A profession is in a position of authority over others and becomes free from the authority of others by the granting of occupational autonomy. In Haga's view an occupation becomes a profession when it can rely on intimidation as its ultimate, even if covert, weapon. He continues,

> "...Note carefully that a genuine profession need only fall back upon its power to intimidate when all other means have failed. In most daily interactions, members of a profession will likely employ both argument and persuasion in dealing with significant others at work. Persistently skeptical clients are labelled as 'difficult' by professions. In the market place, these same clients would be admired as rational consumers. But the status of profession is only slightly founded on rationality. As a last resort, a member of a profession handles 'difficult' others by an ultimatum threatening to withdraw services. If an occupation is truly a profession, the prospect of losing its service will be quite intimidating to its clients or employees" (Haga 1975:175).

The literature of professions will often concede that the profession's most distinctive claim is self-regulation. In empirical studies it often forms one of the dimensions of professional ideology (Hall 1969, Schriesheim 1978). However, evidence exists to indicate that at the practitioner level, it may well be impossible and, in reality, professionalism may act as a barrier to peer regulation. (Friedson and Rhea 1965). Although utilising a single

atypical study of physicians in a clinic, Friedson and Rhea discovered that professional members do not have equal access to information about each other, their assessment of available information varies with specialist perspectives and those who do have access to information do not all pay the same attention to it. Furthermore, there was considerable reluctance on the part of colleagues to discuss each other's performance (even to the extent of quoting it could be positively socially dangerous). The evidence supports the conclusion that peer regulation, if it occurs at all, will be on a slow, individual, trial and error basis through personal experience.

Behaviour regulation, if it occurs at all, is likely through the professional associations and their codes of conduct. The code of conduct sets out the social standard expected of practitioners. It also helps to maintain occupational group existence (Harries-Jenkins 1970). Millerson (1964) in his study of Qualifying Associations, analysed the content of 25 codes that were readily available. They were greatly concerned with competition in terms of finding work and the method of payment. There was little emphasis on service to clients or any duty to expose professional incompetence. Eighty percent of codes prohibited soliciting of work or attempts to supplant colleagues. The same percentage also restricted advertising to within specified limits. Two thirds of the codes condemned practice in another occupation that provided opportunities to obtain clients through underhand means. Furthermore, 50% stipulated that practitioners can only receive remuneration through a salary or professional fee and prohibited any form of discount or commission. The same percentage stated that practitioners must maintain professional charges or standard agreements. In sum, the majority of codes of conduct are concerned with restrictions on inter practitioner competition and there is scant attention paid to the service ideal or the exposition of incompetence.

The highly professionalised groups are often governed by two codes. The written code regulates behaviour between

the professional and his client. This sets the external standard. The second code will be the body of unwritten rules and procedures that govern the informal relationships between practitioners. These will set internal standards for the profession (Harries-Jenkins 1970). The existence of two codes of conduct will effectively avoid dual standards of behaviour and are evident in the older professions of law and medicine.

Professional Monopoly and Privilege

Professional monopoly is based on the existence of a specialised technique. The advantage of a monopolistic situation will be more easily attained if legal protection can be obtained by the profession (Carr-Saunders and Wilson 1933).

The Monopolies and Mergers Commission (1970), in an extensive investigation of professional and occupational monopoly, decided a monopolistic situation existed where,

- standards of qualification denied or hampered access by the unqualified, to the market place.
- certain methods of competition were prevented. The business element in the transaction was inescapable since a price must be charged for the provision of a service.

The Commission also concluded

- it was against the public interest to prevent the unqualified from offering a service except where serious risks to the public.
- restrictions on advertising were, in general, against the public interest except where they would jeopardise the client practitioner relationship. Professional associations and practitioners should provide information on the services provided.
- restrictions on certain types of organisational arrangements, such as limited companies, were against the public interest except where they would jeopardise the client practitioner relationship.

- that competence should be tested by examination and practical tests where applicable with standards to be determined by individual professions. Minimum age limites for entry requirements were acceptable except to higher grades where the criterion should be competence. Furthermore, if experience and responsibility were essential for candidature to higher grades a precise definition of acceptable responsible posts should be provided.

The Monopolies and Mergers Commission essentially applied a comparative standard with the business world in general. Rewards for business and those for professional work have been considered incompatible by some writers. Barber (1963) is an example. He considers money income to be an appropriate reward for individual self interest, commonly attributed to the business world, and prestige and honours to be appropriate rewards for community interest, an ideal underpinning certain perspectives on professionalism.

Hughes (1963) believes, "...Professions come near the top of the prestige ratings of occupations" (p.658). In previous sections evidence has been presented that indicates, for a variety of reasons - historical development, close relationships with aristocracy, high social status, social mobility and high status education - professions, especially the three traditional professions, occupy a unique position in society. They also have occupational prestige. Much of the foregoing can be subsumed under the term professional privilege. Professions enjoy a dual privilege. They are privileged occupations and they also have professional elites that form an integral part of the dominant elites of society (Portwood and Fielding, 1981).

Portwood and Fielding have undertaken an empirical investigation of five professions using wealth, status and power as their starting points. The professions they investigated were,

Lawyers)
Doctors) Traditionally considered to be the
The Clergy) most privileged

University teachers as knowledge creators and gatekeepers to higher status occupations and,

Accountants as occupying an essential control function in corporate capitalism

Using the model indicated in Fig 12 , Portwood and Fielding's data provided evidence that privilege is complex and multi-faceted - Table14 . It is attained by a variety of strategies but the most prominent are a mixture of social and political mechanisms from the pre- and post-industrial periods - Table 15. Privilege has a dynamic quality and is heavily influenced by institutional structures and ideologies from the past. The most crucial factor appears to be the participation of top professionals in the dominant organisational elites of society. Professionals can, therefore, be viewed as not only servants but also exercisers of power. Privilege has an enduring quality: once gained it is usually maintained.

The status and prestige attributed to an occupation has important implications for recruitment. However, the prestige attached to membership of an institution is also dependent on the entrance qualifications demanded. These cannot be demanded until prestige has been acquired. Acquiring prestige is a prolonged and difficult activity (Carr-Saunders and Wilson 1933).

The Producer Consumer Relationship

The idealised client-professional relationship is characterised by a sense of responsibility, pride in service and a lack of interest in personal profit. However, in relation to the wider community, this ideal may well be lacking since the poorer members of the community are often unable to afford the professional's services (Carr-Saunders and Wilson 1933).

There is growing evidence, from a different perspective, that the idealised image does not correspond to reality.

Figure 12 Patterns of Professional Privilege in Pre Industrial and Industrial England

Source: Portwood and Fielding (1981:761)

Characteristic of Professional Privilege	Form of Expression/Mode of Operation in Pre-Industrial	Industrial England
WEALTH		
Income	Fees & sinecures via nepotism	Fees & salaries via merit & nepotism
Socio-economic well-being	Self-employment; gentlemanly life-style; status-based collegiality	Self-employment & employment; gentlemanly life-style for elite; occupationally-based collegiality
STATUS		
Legal Status	By ascription & qualification; protection of function; professional mandate relatively unspecified; guaranteed clientele on basis of legal compulsion; confidential relationship with client	By qualification and ascription; protection of title and function; more specific professional mandate; guaranteed clientele by compulsion (property, welfare, schools, eyesight); confidential relationship with client
Social respect	Based on relationship to elite, education, expectations of public service & expertise; expressive and instrumental role in personal but formal context	Based on expertise, relationship to various class-based groups, traditional status, expectations of public service, instrumental and expressive role often in formal context
POWER		
Control over professional affairs	By elite appointed by royal patronage	By appointed officer of professional association, and elite which is nominated by elite itself and members
Control over production of knowledge and skills	By profession itself; unquestioned prerogative by virtue of class origin; self-accountability (if any) via professional elite and ecclesiastical courts	By profession itself & secularised universities; by meritocratic credentials via professional schools; self-accountability and state sanctions via professional associations
Authority of practitioner to define client need	Based predominantly on traditional and/or supernaturally-legitimated knowledge & collective altruism following class, gender & religious divisions	Predominantly on basis of technical knowledge & personal altruism following class, gender and racial divisions
Control of choice and handling of clients	By professionals as restricted by overt class interests & rules of peers, superiors and any patrons	By professionals as restricted by covert class interests, rules of professional association by state regulations and the constraints of any employing agency
Political manoeuvring and manipulation	By elite for elite with King and his Ministers	By professional association and elite individuals for elite and whole professional body with Ministers and top civil servants; by professional association with other professional bodies and occupational representatives; by segments of profession with other segments; by appeal to popular support
State policy formation, interpretation and execution	By top professionals by virtue of status - elite with elite	By professional association representatives & individual expert professionals with Ministers & top civil servants in relation to both covert class interests and general welfare provision
Ideological and cultural influence	The role of elites and elite individuals in academic life, pulpit and in the court to preserve and adapt values of ruling class	By elite and elite individuals and organised groups in academic life, the media and in Parliament to both preserve adapt and change values in the context of a relatively diverse power structure; professionalism as a model for work organisation

Table 14 Patterns of Professional Privilege - Characteristics
Source: Portwood and Fielding (1981:764)

	Professional Elite				
Characteristic of Privilege	Senior Barristers	Senior Clergy	Medical Consultants	Senior University Teachers	Senior Chartered Accountants
Income exceeding £16,000p.a.[a]	Yes	No	Yes	Comparable	Yes
Extent of private practice	Complete	None	Considerable	Marginal	Almost complete
Method of incorporation	Voluntary	Statute	Statute	Charter	Charter
Basis of high status and social respect	tradition/instrumental skills	Tradition/expressive skills	Tradition/knowledge and skills	Tradition/knowledge	Instrumental skills
Controlling body	Themselves - Inns of Court	The Church Synod	Themselves - GMC and Royal Colleges	Individual University Senates	Themselves - ICAEW
Requirement for professional training	Yes	Yes	Yes	No	Yes
Control of choice and handling of clients	Complete over both	Little choice Lay pressure over handling	Little choice outside private practice. Complete over handling	Choice according to status of univ. Little pressure over handling	Complete over both
Political manoevring and manipulation	Clear prof-state intermix at top of prof.	Bishops members of House of Lords	Role of BMA and Royal College officials	Role of Committee of Vice-Chancellors & AUT	Role of ICAEW professional committees
Involvement in state policy formation interpretation and execution	Crucial in all policy. Continuous Institutionalised	Marginal. Spasmodic Institutionalised	Crucial in health field. Continuous Institutionalised	Institutionalised advisory role when required	Important in finance management. Advisory role when required
Ideological and cultural influence	Crucial importance of advocacy of rule of law, 'democracy', individual freedom - political influence	Significant only re mysteries of life, family communitas - moral/theological influence	Influence-part technical e.g. 'spare parts surgery' part moral e.g. anti-smoking but credibility reduced by overt concern for sectional interest	Leading academics very influential at intellectual & even consciousness levels e.g. Freud Keynes - general consequence of research function	Only indirect through 'technical' influence e.g. computers and accounting systems

[a]The current (February 1981) average salary for a NHS GP.

Table 15 Patterns of Professional Privilege - Mechanisms
Source: Portwood and Fielding (1981:765)

Mechanism of Privilege	Senior Barristers	Senior Clergy	Medical Consultants	Senior University Teachers	Senior Chartered Accountants
Reliance on Tradition	Considerable	Critical	Considerable	Limited	None
Service of High-Status Clientele	Overwhelming	Yes, except in their priestly role	In private practice only	Predominantly	Overwhelming
High degree of involvement with political elite	By individuals and professional association	By individuals	By individuals and professional association	By individuals	By elite companies
Support for ideology of capitalism	Explicit	Implicit	Implicit	Implicit	Explicit
Support for ideology of humanitarianism	Yes	Yes	Yes	Yes	No
Concern with expansion of knowledge	Considerable	Minimal	Considerable	Absolute	Minimal
Emphasis on elaboration of skills	Limited	Minimal	Great	Limited	Great
Persuance of intra-professional segmentation	Yes	No	Yes	No	Yes
Domination of related professions and occupations	Yes	No	Yes	Yes	Yes
Domination of professional association	Yes	No (General Synod)	Yes	No(AUT)	Yes
Whole profession has entry bar to unqualified i.e. the closure principle of exclusion	Yes	Yes	Yes	No.	Yes

In many instances structuring of expectations occur and the client and practitioner must conform to each other's expectations (Hall 1969). Elliot (1972) is more restrictive on structuring of expectancies. He believes clients are expected to act the role of client consistent with professional expectations.

At a structural level the customer's role has been dichotomised into consumption (receiving goods and services for the satisfaction of needs) and control (over distribution of resources in accordance with needs). The split in the consumer role has resulted in control being taken away from the consumer and placed in the hands of others (Etzioni 1964).

Etzioni suggests a continuum of consumer control,

Least Consumer Control → Most Consumer Control			
Public Monopolies	Schools, Universities, Hospitals, Health Services	Private Monopolies Duopolies & Oligopolies	Small Business

Etzioni considers professionals are difficult to locate on the continuum since their services, especially when organised in an administrative framework, are separate from the fee charged and, therefore, from direct client pressure.

Hillier (1979), in his study of the UK Architectural profession, provides a useful insight into the client professional relationship. It has a direct bearing on Quantity Surveying as work settings and clients are very similar. Major empirical findings on clients to the Architectural profession are,

- Smaller practices have a 3:1 ratio of private clients compared with larger practices. However, larger practices have a more stable clientele. 54% of commissions for larger practices were repeat commissions compared to 33% for smaller practices. Smaller practices compensate for a lower rate of repeat commissions with a higher rate of commissions through recommendations by previous clients. Most work,

therefore, comes by word of mouth and does not alter significantly with size of practice.

- Client types vary with size of practice. Larger practices undertake a higher proportion of work for Local Authorities than smaller practices. A similar relationship holds for major public clients with small practices doing relatively badly.

- If project value, as opposed to number of projects, is considered the largest practices have approximately four times the proportion of jobs worth over £¼m (1978/9 prices). However, taking the total number of jobs worth £¼m, they are more evenly distributed among practices with the larger practices obtaining as many, in total, as the smaller practices. Large jobs are few in the smallest practices but clients are as likely to place £¼m jobs with small, as compared to large practices.

- Many practices specialise involuntarily in types of buildings. This is a direct result of relations with particular clients. The tendency to concentrate on one building type was pronounced with large and small practices but not with medium-sized firms. In the majority of cases specialisation was unintended.

- In terms of abortive work there are major differences between public and private sectors. In the private sector approximately 20% of projects were cancelled or postponed at the Scheme Design stage and only 12% at the Production Drawing stage. In the public sector approximately 21% were cancelled or postponed at the Production Drawing stage and only 8% at the Scheme Design stage.

In summary, the Architectural profession is involved in highly complex relationships with clients which are dependent on size of practice, type of client and sector of employment.

Section Summary

A number of principles are important in order to understand the concept of profession (Millerson 1964). They provide a framework for guiding the current investigation. Professional characteristics differ in pre- and post-industrial society. Status professionalism relates to professions in pre-industrial society and occupational professionalism in post-industrial society (Elliot 1972). However, there may be considerable historical overlap especially with the persistence of the idealised 'gentlemanly image' of the professional (Portwood and Fielding 1981). Professions serve a number of functions in society (Carr-Saunders and Wilson 1933, Elliot 1972) but they are essentially vulnerable institutions (Barzun 1978). As an occupational form, professions have attracted considerable interest from sociologists but much of the literature is confusing (Johnson 1972). The present study takes as its fundamental premise that a profession is a form of occupational control. Empirical attempts have been made to differentiate professions from other occupations. To a limited extent this has proved successful but there are considerable methodological problems. At best, professions are a unique product of the division of labour involving highly specialised skills. However, the consequence, for society, of occupational specialisation is the creation of social distance. This leads to structural uncertainty between the producer and consumer of goods and services (Johnson 1972).

Professionalism is an ideology that has been linked to class divisions in society (Parry and Parry 1977). It is used increasingly as a strategy to justify occupational power and the pursuit of occupational autonomy (Elliot 1972, Layton 1971). As an ideology, it is primarily attributed to established professions but it will often be used by occupations in search of professional status. The indiscriminant use of the term has added to the confusion already existing in the professional literature. Professionalism has been shown, empirically, to be multi-

dimensional (Hall 1969, Schriesheim 1978) but empirical evidence on differences between social classes is only weak (Schriesheim 1978).

Professionalisation is the process of becoming a profession. Occupational action is required to professionalise but public recognition of occupational status is also necessary (Hall 1969). A preliminary empirical scale of professionalisation has been developed (Hickson and Thomas 1969), but it suffers from methodological problems. Sociologists have viewed professionalisation as a chronological progression although there is growing evidence that it is either more complex than a simple linear progression, or it is a convenient concept to circumvent inconsistent research evidence (Johnson 1972).

There are a number of different types of professional association (Millerson 1964). The most important for the present study is the Qualifying Association. The principle functions of Associations are to test competence and consolidate the profession (Millerson 1964). However, as an organised body they face problems of membership apathy and oligarchic control (Blau and Scott 1963). The literature on professions often relates the Qualifying Association to the process of professionalisation but there are a number of definitional problems (Harries-Jenkins 1970). A Qualifying Association provides control over recruitment and training. It is also involved in the educational process. Recruitment, to the traditional professions, reflects high social status groupings in society who are predominantly educated in high status educational establishments (Elliot 1972). A high proportion of professionals in the four major Qualifying Associations left school before eighteen (The Robbins Report 1963). The trend for members of the Institute of Mechanical Engineers is towards diversity in social background during this century (Gerstl and Hulton 1966).

The educational system for professions remains complex (Carr-Saunders and Wilson 1933, Harries-Jenkins 1970) with no clear evidence linking professionalisation to the

educational process (Harries-Jenkins 1970). However, the educational system serves as a mechanism linking status of origin with future occupational position. Professional education is moving towards the assimilation of vocational skills rather than producing the 'rounded gentleman' (Elliot 1972).

Training is concerned with teaching job related skills (Mintzberg 1979). There is a move towards full-time education rather than part-time study (Harries-Jenkins 1970).

Knowledge is an important power base for professions (Blau and Scott 1963, Elliot 1972). At the occupational level, it is a source of power resting on expertise in areas of uncertainty. However, it is an unstable power base since uncertainty decreases as knowledge increases. For this reason professionals seek uncertainty for continued pursuit of professional practice (Montagna 1968). This process adds to the knowledge base but consolidation of knowledge by the professional associations tends to be slow. Uncertainty provides an impetus for professionalisation and for the potential of occupational autonomy. At the individual level, the knowledge base confronts the individual with personal responsibility and the consequent claim for social immunity (Etzioni 1964).

Professional behaviour has been viewed as a mixture of altruism and self interest (Hall 1969). True professional authority can rely on intimidation as its ultimate weapon (Haga 1978). Self regulation is the profession's best claim to status and it is an important part of professional ideology. However, peer regulation may not be possible in practice. Professionalism may well act as a barrier to self regulation (Friedson and Rhea 1965). Professional behaviour is often expected to be controlled through codes of conduct (Harries-Jenkins 1970). Written codes are, in the main, concerned with restrictions on inter practitioner competition with little emphasis placed on the service ideal (Millerson 1964).

Many of the attributes used to characterise professions

and justify monopolistic privilege have been shown to be against the public interest (Monopolies and Mergers Commission 1970). Professional monopoly rests on a specialised technique and legal sanctions are advantageous in maintaining the monopoly (Carr-Saunders and Wilson 1933).

Prestige and honours are more appropriate rewards for professional behaviour (Barber 1963) but empirical and literary evidence suggests professions are privileged not through reward of altruistic motives but through associations with wealth, status and power distributions in society. Furthermore, professional elites consolidate and maintain professional privilege as representatives of the dominant organisational elites of society (Portwood and Fielding 1981). Status and prestige are also important for occupational recruitment (Carr-Saunders and Wilson 1933).

The client practitioner relationship has an idealised form that may not live up to reality especially at an individual level (Elliot 1972, Hall 1969). At the structural level, control has tended to be removed from the consumer. Consumer control may be considered as a continuum. Professionals are difficult to locate on the continuum especially if they are situated in an administrative organisational framework where direct client pressure is difficult (Etzioni 1964). Empirical evidence on client relationships with the UK Architectural profession, a profession intimately connected with the structure of the Quantity Surveying profession, indicates a complex set of relationships that are dependant on size of practice, type of client and sector of employment (Hillier 1979).

The following section will review a number of models for viewing professions. They adopt perspectives at the societal, occupational and intra occupational levels of analysis.

DIFFERING MODELS OF PROFESSIONS

The literature on the professions is extensive. The following section deals, mainly in outline form, with the differing approaches and conceptualisations of professions. The list is by no means exhaustive but the selection has been based on those models that will provide a more useful insight into the Quantity Surveying profession. A number of the models reviewed operate at the societal-occupational level whilst others are concerned with occupational or intra occupational analysis. The models to be discussed are,

Trait)
Functional) models often subsumed under the 'taxonomic' approach

Neo Weberian model

Marxist model

Johnson's (1972) occupational control typologies

Haga's (1975) cruciality, mystique model

Hall's (1969) attitudinal and structural model

Bucher and Strauss's (1961) process model

Gordon and Ross's (1962) professional status model

Where possible, supplementary arguments will be indicated in the text, but, in the main, literature referring to a specific model will be indicated at the beginning of a sub-section.

The Taxonomic approach[6]

(a) Trait models

'Trait' models are concerned with an attempt to identify a common core of attributes that will allow occupations to be classified as professions. There tends to be an emphasis on identifying an ideal type (Johnson 1972, Turner and Hodge 1970). More recent additions to this approach are the work of Cullen (1983) and to a lesser extent, Kerr, von Glinow and Schriesheim (1977) and Schriesheim (1978). Criticisms of the trait model are numerous. The basic building block is the acceptance

and existence of 'true' professions that have these attributes, usually the Church, medicine and the law. There is no theoretical framework for selection of traits. Researchers will often use the definitions provided by occupation(s) under study. The trait model is ahistorical, with no attempt to link over time the development of an occupation/profession with environmental and/or intra occupational influences. The model builders also tend to ignore the nature of the clientele and often there is considerable confusion over the structural conditions of professionalisation and the defining characteristics of professionalism (Johnson 1972, Turner and Hodge 1970).

(b) The functionalist model

The second approach, the functionalist perspective, is concerned with isolating those elements that are important for the functioning of society as a whole or the practitioner client relationship in particular. This approach is more abstract than the preceding model with considerably more emphasis on description. Criticism of the functionalist perpective is again heavy. First, the approach accepts that the knowledge base of a profession has equal utility to all members of society. Society in turn will reward altruistic service with prestige and honours. Second, there is an ahistorical assumption that no other forms of institutional control can exist other than professionalism. Third, it excludes the power dimension. Fourth, there is considerable emphasis on membership homogeneity. (Bucher and Strauss 1961, Johnson 1972).

Saks (1983), although commenting that criticisms of the taxonomic approach may have been too harsh, concludes there is a severe lack of empirical research using the core attributes to analyse the degree of professionalisation.

The taxonomic model, in sum, has suffered from a number of drawbacks. It has prompted two researchers of the professions to remark,

> "...many occupations have been surprised by their success in fulfilling most of the prescribed attributes and simultaneously dismayed at what little difference it made in genuinely enhancing their status. This follows since such lists contain traits that are observable results of being a profession. These traits are not the causal factors that can convert any occupation into a genuine profession" (Haga 1975:173).

Millerson (1964) continues,

> "(The) ...Prevalence of particular aspects perhaps implies agreement, as well as blind acceptance from others" (p.4).

The use of the taxonomic approach in analysing professions can, therefore, at best, only provide suggestive evidence for the existence of a professionalised occupation. It suffers from the severe limitation of delineating the bona fide profession (if one exists) from the host of occupations seeking its status.

Figure 13 sets out the expanisve taxonomic literature. It is an amalgamation of Tables presented by Cullen (1983) and Millerson (1964). Columns and rows have been summed to indicate the diversity of results.

The Neo-Weberian and Marxist Models

From a descriptive viewpoint both models are set forth in Saks (1983). However, a brief resume will highlight important points from each model.

The neo Weberian perspective is a recent approach to the analysis of professions which uses, either covertly or overtly, the Weberian concept of social closure on market forces. It is a market oriented approach. Professionalisation is viewed as an exclusionary closure of the market place using credentials as the major mechanism. Saks presents a number of sources of evidence indicating that professionalisation and professionalism are occupational strategies for controlling the number of prospective candidates to a profession. As a consequence the market value of the profession is enhanced through the forces of supply and demand. Saks criticises the Neo Weberian approach for lack of empirical evidence, both documentary and

	Skill Based on theoretical knowledge	Requires training and education	Competence tested	Organised	Adheres to code of conduct	Altruistic Service	Applied to affairs of others	Indispensible public service	Licensed(requires community sanction)	Definite professional client relationship	Fiduciary client relationship	Best Impartial service given	Loyalty to colleagues	Definite compensation(ie. fee)	Self Employed	Complex relationship with people	High Income	High Prestige	Complex occupation		SCORE
Bowen (1956)	+		+	+	+																4
Carr-Saunders& Wilson(1933)	+	+	+	+	+									+	+	+	+		+		10
Christie (1922)		+			+		+														3
Cogan (1953)	+					+	+									+			+		5
Crew(1942)				+	+	+		+													4
Drinker(1953)	+					+					+		+								4
Flexner(1915)	+	+		+		+	+									+					7
Greenwood(1957)	+	+		+	+				+										+		6
Howitt(1950)		+	+		+	+				+											5
Kaye(1960)	+		+	+	+																4
Leigh(1950)	+	+																			2
Lewis & Maude(1952)		+	+	+	+	+			+		+				+						7
Marshall(1939)				+																	2
Milne(1959)	+			+	+	+		+													5
Parsons(1954)				+						+											2
Ross(1938)	+			+	+	+						+		-							5
Simon(1951)		+	+		+																3
Tawney(1922)			+	+	+																3
Webbs(1917)							+					+		+							3
Whitehead(1948)	+						+														2
Wickendon(1952)	+	+	+	+	+																5
Akers(1970)		+		+					+										+		4
Barber(1963)		+		+	+													+	+		5
Caplow(1954)				+	+				+												3
Foote(1953)				+															+		2
Goode(1957, 1969)		+		+	+	+			+							+	+	+	+		9
Gross(1958)				+															+		2
Moore(1970)		+	+	+	+	+													+		6
Pavalko(1971)		+			+														+		3
Vollmer & Mills(1966)				+															+		2
Wilensky(1964)		+		+	+				+										+		5
SCORE	12	15	9	22	19	10	5	2	6	2	2	2	1	2	2	4	2	2	14		

Figure 13 The Taxanomic approach

Source: Adapted from Cullen (1983) and Millerson (1964)

historically, to substantiate the claims.

The Marxist approach places the professions within a broad social framework and the general distribution of power in society. The Marxist perspective considers the professions to be tied to and generally supportive of the class structure and capitalism. The lower classes are viewed as victims of the capitalist class structure. In this vein the professions are generally considered in a poor light. Saks again criticises Marxist researchers as being empirically unsubstantiated armchair theorists.

Institutionalised Strategies for Occupational Control (Johnson's 1972 Typology)

Mention has already been made of the concept of social distance and its relationship to structural uncertainty. By focusing on the consumer-producer relationship and the way that structural uncertainty is reduced Johnson has suggested three strategies for occupational control. These may not be mutually exclusive. The following discussion will concentrate on the essential qualities of each of the three forms.

1. Collegiate

   Professionalism is one form of collegiate control and arises through an institutional framework based on occupational authority.

   The conditions required for its emergence are,

   - the producer defines the needs of the consumer and the manner in which those needs are catered for.

   - the occupational skills are demanded by a large and relatively heterogeneous group of consumers. The consumer group has diverse interests, is unorganised, is dependent and exploitable.

   - dependence is created through needs that may be distributed according to socio economic status. Exploitability is dependent on the relative importance of the occupational service to the community.

Technically based authority will often be extended to broader social contexts again primarily due to the heterogeneity of the consumer. The profession will consider it is within its rights to pronounce on matters important to society that are associated with, but not a central core of its practice. Professionalism was originally market based and expanded with the needs of the industrial revolution. The emergence of collegiate control, historically, was also facilitated by close associations with powerful social groups including the aristocracy.

The producer consumer relationship is on a one to one basis either through solo practice or partnerships. The relationship is instituted by the client and terminated by the professional. Consumer control, as exercised through consumer choice, is weak due to consumer heterogeneity and individualisation. The only recourse, for the consumer, lies with the occupational association since remuneration is by association defined fees.

Professionalism is associated with a homogeneous occupational community, both in terms of outlook and interests. Consequently, specialisation within the occupation is low and recruitment will often be from similar social backgrounds. However, if general practice has given way to specialisation then community identity will be threatened and there may exist the possibility of divergent interests and missions. Specialisation may occur along consumer status differences and this will further add to divergency among the occupational community.

The occupational association acts as a registering body. It holds power over the membership through sanction mechanisms for the control of occupational and non occupational behaviour. It will also attempt to impose a uniportal system of occupational entry and so ensure a similarity of outlook, interest and mission through

the creation of mutual socialisation experiences. The career is a defining characteristic and is considered to be continuous and terminal. It is also an important mechanism for maintaining the sense of identity, colleague loyalty and shared values. Furthermore, the myth of a community of equal competence generates public trust.

Professionalism creates an occupation of self conscious practitioners where the work setting and working life are of central importance. Occupational skills are considered non transferable. Furthermore, the ideology of professionalism claims that high economic and social rewards are justified by lengthy training to acquire professional skills. However, there are major tensions within professionalism as a form of occupational control. These tensions threaten its stability. The dominant source of tension is the conflict between consumer choice and occupational control. Where the former is evident, it will operate against occupational control since it will encourage diversity. The ban on advertising can be viewed as an occupational strategy to reduce the threat of occupational diversity. This is especially necessary where there is the possibility of a professional elite capitalising on an already favourable position. The strain towards consumer choice may, according to Johnson, eventually eliminate professionalism. This may be especially true of those occupations that have been subject to investigation by the Monopolies and Mergers Commission.

2. Patronage

Fully developed institutions of patronage develop where consumers have the capacity to define their own needs and the manner in which they are met.

The conditions required for its emergence are,

- the dominant effective demand for services from a small, powerful, unitary clientele. Corporate patronage arises where a few large scale corporations are the major consumers of expertise.

- the patron is relatively independent and unexploitable by virtue of wider social power bases.

Technically based authority and occupational autonomy, stemming from social distance, are at a minimum. The significance of patronage, for an occupation, is dependent on the degree to which occupational practice is defined by the patron as opposed to the occupation. Recruitment is based on sponsorship with the main criteria being shared values and status. Technical competence may be of secondary importance. Thus, a small serving elite of practitioners share, to some degree, the same social origins and characteristics of those using their services. If the system of patronage is fully developed the professional elite will work for the more powerful corporations, either as consultants or employees. As a consequence an occupational hierarchy will be formed.

Corporate patronage will usually be the cause of large professional bureaucracies ie. professional firms (the CPA firms of Montagna 1968), that are dependent on corporate business. Furthermore, corporate patronage will also produce a locally oriented professional community. The evaluation of role performance will, therefore, tend to lie with the organisation rather than with peer structuring. As a consequence of local orientations and the needs of the patron there will be a strong tendency for local knowledge and skills to develop, with local prestige and reputations of more importance for the practitioner. Professional practice will not be viewed as a continuous and terminal career by all practitioners. Advancement in the occupational hierarchy will normally be by association with more and more powerful patrons.

Corporate patronage, as mentioned earlier, produces an occupational hierarchy. This will be manifested in a number of ways. First, in the professional bureaucracies there will be a preponderance of managing partners whose authority will be defined in terms of their role position in an organisational hierarchy. To them,

authority is organisationally rather than professionally defined. Second, within the profession there will be a move to create technician grades for practitioners. These subordinate grades will effectively be excluded from entrance to higher grades. In practice this will mean greater specialisation by occupational leaders with routine tasks delegated to technicians. Johnson notes this is already under way in the Accountancy, Engineering and Architectural professions.

Corporate patronage is characterised by less stress on the pursuit of basic knowledge with a greater emphasis on knowledge specifically related to the needs of the patron. The neglect of research by patron controlled occupations has often been associated with a slow development in formal education. Johnson elaborates using the accountancy profession as an example. There has been low emphasis on research into accountancy practice and an emphasis on qualifying by correspondence courses due to the requirements of local experience. He adds that Articles have been significant in accountancy education. Usually they are associated with professionalism. However, Johnson explains that under professionalism the tendency is for training to be in the hands of professionally controlled schools such as the Inns of Court.

Furthermore, under patronage, theoretical knowledge is of less importance because practitioners are interested in the "here" and "now". They will be more concerned with explanations that can be simply and immediately applied. The practitioner, under patronage, is to an extent protected. There are limitations on the requirements of knowing and doing. He may well be limited in the requiement to learn an extensive body of theory in order to practice.

The ideology of patronage is the opposite of professionalism. The former stresses superior competence whereas the latter stresses equal competence.

The major tensions of the patronage system of occupational

control are produced by occupational hierarchies and dual systems of practice. Conflict and competition are introduced into the system with the stress on technician, graduate and non graduate grades.

3. Mediation

Under this system of occupational control the State intervenes in the client practitioner relationship and defines the needs and/or the manner by which these needs will be catered for. Therefore, the State is attempting to remove from the producer and consumer the authority to determine the content and subject of practice.

A continuum of mediation may exist. At one extreme the State may have minimal encroachment on an already existing system of professionalism (reflecting the bureaucratised professionals as described by Fielding and Portwood 1980). At the other extreme the State may attempt to ensure a desired distribution of occupational services by providing them through a State agency. Professional employees have a statutory obligation to provide the service.

State mediation provides a guaranteed clientele. The consumer is defined in terms of citizenship rather than by social status or the ability to pay. The result is a greater diversity of consumer characteristics than under either of the two previous forms of occupational control. Uncertainty is managed, under mediation, by reducing the possibility of exploitation from either side of the consumer producer relationship. However, under mediation there is considerable ambiguity concerning the identity of the consumer. The consumer is a diffused clientele.

Mediation undermines the existing social bases of recruitment by placing it in the hands of academics. As a consequence, there is considerably more opportunity to enter a state mediation controlled occupation through expanding channels of academic entry. The power relationship shifts away from the occupational community

into the hands of the academics.

State mediation will increase the number of occupations working within the framework of government organisation. There is an intermingling of professional and organisational roles as the occupation becomes more bureaucratised. Consequently, occupational stratification occurs, undermining colleague relationships and neutralising occupational controls that an autonomous profession may have over its members. Occupational and organisational stratification will produce a diversity of interests and orientations, further undermining the occupational community. It will be unlikely, in such a situation, for any dominant power group to emerge on the basis of location alone.

State mediation will also produce a drive towards localism. Practitioners will identify more with the organisational hierarchy, especially in terms of career structures. Often, careers will become identified with government administration rather than those available within a given profession. Therefore, differences in structural and locational situation may cause differences in the degree of identification with the occupational community. The occupation is no longer viewed in terms of a terminal career.

The ideology of state mediation is one of social service rather than one of personal service as under professionalism.

<u>The Cruciality, Mystique Model (after Haga 1975)</u>

A combination of cruciality and mystique defines a true profession (Haga 1975). The greater the degree of each possessed by an occupation the greater its status as a profession.

1. Cruciality

   An occupation possesses cruciality when some group of <u>significant others</u> defines it as being vitally necessary to their prosperity or survival. This implies that the occupation has an almost life or death relationship

with the clientele, its public or employers. Significant others, for the occupation, must be a group of people it requires as an audience for its presentation of professionalism.

Cruciality, for the individual, is rooted in his/her own perceived needs that have arisen from his/her own experiences in life. These experiences may have represented threats, demands or opportunities. The more crucial a matter is perceived to be the greater the tendency to seek out the particular profession that has a monopoly over it.

2. Mystique

Mystique arises from cruciality. When the individual sees himself as having a crucial problem he will seek out a practitioner who will be perceived as having more extensive knowledge on the subject than the layman. The practitioner is perceived as being in possession of a mystery. To significant others the practitioner undertakes esoteric work of a kind that is beyond the comprehension of ordinary mortals. Therefore, it is more than just specialised skills, expertise or competence.

The mystique of a profession creates authority relationships between the participants. The significant others know the problem to be beyond their own comprehension, both in terms of ability and knowledge. Furthermore, the significant others allow the practitioner to exercise his own judgement to solve the problem since he is perceived as having the knowledge to understand the situation. Suspension of judgement by the layman creates the mystique necessary for a profession.

Figure 14 is a representation of the two dimensional matrix produced by cruciality and mystique.

Hall's Structural and Attitudinal Model[7]

The model produced by Hall (1969) uses, as a basis, the taxonomic approach. However, Hall distinguishes between structural and attitudinal attributes of professions. His model is also considerably more empirically based than the

Figure 14 The two dimensional cruciality mystique matrix
Source: adapted from Haga (1975)

CRUIALITY	MYSTIQUE: LOW	MYSTIQUE: HIGH
LOW	Maximum constraint on aspirations to professional status. Includes occupations diligent in pursuing professionalism but failing to make it. Examples: Public relations, Librarians.	Possess some form of mystery and are not among the irrevocably damned. Examples: Watchmaking, diamond cutting, astrology, science at technician level. Computer operations is the best candidate for profession
HIGH	The most active strivers. Lacking in perception of the need for mystique. Work place may not allow this to develop. Examples: Teaching, journalism, farming, military leadership, social work, and business management	The true profession. Examples: Law, medicine, clergy, dentistry, veterinary medicine, architecture and accounting. Probables: Pharmacy, surgical nursing, clinical psychology

taxonomic model.

1. The Structural Attributes

Hall's structural attributes are those of Wilensky (1964). They are

(a) The creation of a full time occupation.

This may involve performing existing as well as new functions and is a reaction to the needs of the social structure.

(b) The establishment of a training school.

This is a reflection of the knowledge base of the profession and the efforts of early leaders to consolidate and improve the standing of the profession. It is usually assumed that as professionalisation preceeds the occupation will affiliate to a university. However, occupations that are currently professionalising will simultaneously establish a training school and university affiliation.

(c) Formation of professional associations.

This may often herald a change in occupational title with attempts to more clearly define the nature of the professional task and test practitioner competence. Political agitation to secure state licensing and protection from competing occupations is common place.

(d) The formation of a code of ethics.

These will be concerned with internal (colleague) and external (client and public) relations. The professional associations will enforce the codes.

The structural attributes are seen as a set of sequential stages through which an occupation passes in the process of professionalisation.

2. The Attitudinal Attributes

The attitudinal components of professionalisation are,

(a) The use of the professional organisation as a major reference.

The formal professional association and informal colleague groupings are seen as major sources of ideas and judgements for the professional in his work.

(b) A belief in service to the public.

This includes the notion that the occupation is indispensable and that it benefits both public and practitioner alike.

(c) Belief in self regulation.

This is concerned with colleague control and peer regulation since the professional's peers are viewed as the only group capable of assessing competence.

(d) A sense of calling to the field.

This reflects the dedication of the professional to his field of work and a sense that he will continue in the occupation even if greater extrinsic rewards were available.

(e) Autonomy.

This is concerned with the feeling that the practitioner should be allowed to exercise independent judgement without external pressures from clients, from individuals who are not members of his profession or the employing organisation.

In an empirical investigation using the model, Hall discovered the attitudinal and structural components do not always co-vary. The more professionalised occupations, structurally, are not always the most professionalised attitudinally.

Hall (1969) concludes the data support the idea that attitudinal components, belief in service to the public and sense of calling to the field, may have little importance to the position of an occupation in the overall occupational structure.

Professional organisation as a major reference, belief in self regulation and autonomy appear central to professionalisation.

Autonomy is the key element in professionalisation, according to Hall, since it has an attitudinal and structural component. Attitudinally it reflects the degree of independent judgement exercised by the practitioner in the work setting. Structurally, autonomy is indirectly related to the efforts of the professional association to exclude the unqualified. The knowledge base, community sanction and colleague control of behaviour are all aspects of autonomy.

The importance of autonomy has been taken up by a number of commentators. Pavlovic (1983) identifies three simpler concepts subsumed under the global concept of autonomy. The first two concepts are external to the individual. They are the concept of relative lack of restriction on action and the concept of relative absence of coercion. The third concept is an internal condition of the individual who is considered to be the initiator of action rather than its medium. The first two concepts are, therefore, concerned with freedom of action whilst the third is concerned with the attribution of personal responsibility.

Freedom of action and the organisational setting are closely related. Autonomy has a strong inverse relationship with degree of bureaucratisation (Hall 1968). Organisational structuring, for the American Architectural profession, has important implications for autonomy. The degree of autonomy increases from the heteronomous organisation, autonomous, professional department to solo practitioner (Foremen 1975). Furthermore, attempts to attain autonomy, within organisations, will involve political contests rather than open conflict (Green 1975). However, Mintzberg (1979) argues that the individual performing the professional task only <u>appears</u> autonomous since he is a product of his background ie. training has inculcated the individual with the ability to perform without direct supervision. However, the professional is still in a position to exercise considerable discretion due to task complexity.

The Process Model (after Bucher and Strauss 1961)[8]

Professions are conceived as having segments that are essentially organised coalitions of practitioners with their own identity. Segments are not static but are constantly undergoing change. A specialisation is considered to be a major segment but it in turn will have coalitions and oppositions. Professions are therefore conceptualised as loose amalgamations of segments each having different objectives, pursued in different ways. These loose amalgamations are held together under a common name at a particular period in time.

Each segment has its own ideology. However, segments are operating within an institutional framework and a large part of their activity will be taken up in power struggles for either possession of or a place within the institutional framework. Furthermore, the existence of the framework will mean, in practice, that there is a considerable amount of interdependency among segments. The institutional elite are very aware of the importance of status within the profession. They are, therefore, able to operate from positions of relative institutional power and exercise considerable influence over institutional recruitment.

There are seven parts to the process model.

1. The sense of mission

   In the early stages of formation the practitioners will characteristically proclaim an exclusive domain and a sense of unique mission. A statement of the mission will be issued that sets out the unique contribution the speciality can make to society. The statement may often contain a considerable amount of rhetoric especially if issued during a struggle for existence, recognition and institutional status. However, during the life of a speciality other segments may develop, each with their own missions.

2. Work activities

   Task diversity will be considerable with each segment offering different ideas on what is the core activity

or most characteristic professional act. It will also be highly probable that segments will weight different activities as more important for the profession. Frequently, segments will develop different core and associated ancilliary activities. This may, in turn, create further diversity in commitment to any one major area.

3. Methodology and Techniques

One of the most profound and deep divisions of members will occur within this area. A division may occur not only among specialisms but also on methodological grounds. Methodological differences may occur across speciality and professional boundaries. Specialists may share techniques with neighbouring occupations but not those of their own colleagues.

4. Clients

Segments develop sets of relationships with clients that are peculiar to their own segment. There will be a characteristic idealised image of the client practitioner relationship for a particular segment. Furthermore, in reality, some professionals may never come into direct contact with clients.

5. Colleagueship

This may be one of the most sensitive indicators of segmentation in a profession since the colleague-colleague relationship is intimately bound up with a practitioner's own standing and place within it. Colleagueship implies occupational unity. Furthermore, regulated entry into a profession also makes the implicit assumption that all members of the occupation have a common focal interest. However, the existence of colleague cliques may well cause segmentation to occur; what may bind one group together may be anathema to another. It is beyond the bounds of reality to expect all members of a profession to be considered potential colleagues.

Bucher and Strauss utilise the concept of circles of colleagueship to denote the above but have a preference for the term alliances of members rather than colleagueship. Alliances possibly reflect a closer proximity to reality as segments may often have more in common with neighbouring occupations than with their own profession.

6. Interests and Associations

Bucher and Strauss take a contrary view to the common assumption, in the sociological literature, that professionals have unity of interest. They argue that interests not only diverge but are often in direct conflict. Common reasons for open or covert conflict are segmentary concern with affiliations to educational institutions, recruitment and relations with external bodies. Furthermore, it will be highly probable any view expressed by the professional association will be a reflection of a single segment or alliance of segments.

7. Spurious Unity and Public Relations

The view of the profession presented to the external world will often reflect the power of certain groups within the association. Therefore, an apparently unified and homogeneous external front may not reflect the competition between segments for control over the association's resources.

Bucher and Strauss view codes of ethics to be no more than historical deposits from previous powerful segments. Codes are subject to change if the membership of critical committees alter in favour of certain segments. Furthermore, certification procedures may shift with the relative power of segments with certain methods of training favoured over others.

The professional elite, which control the association, is also in control of the public relations aspect of the profession. It will communicate its own perceptions of the profession to the public. The new recruit to the profession will encounter the results of the cabal but may never be aware of the identities of individuals or

of the power struggles behind the unified front.

Bridgestock (1976) has criticised Bucher and Strauss's model for failing to take account of any social influences that may affect conflict within the profession. These external influences may be the cause of conflict. The model makes the assumption that conflict is intra professionally determined.

The Professional Status model (after Gordon and Ross 1962)

Gordon and Ross (1962) set out a number of characteristics that define a professional and the manner in which he works. However, these characteristics, although seen as necessary for the professional client relationship, are not mutually independent or sufficiently unique to unambiguously differentiate it from any other possible relationship.

The characteristics are,

1. Pre-requisites

   (i) The provision and performance of a service that is superior to any that the client or any other individual can provide, without special qualifications.

   (ii) The authority and responsibility for the performance of the service passes from the client to the professional. However, this transfer is subject to the following assumptions,

      (a) The professional is believed, by the client, to have superior knowledge and judgement.

      (b) The client places trust and confidence in the professional which he believes will not be abused.

2. Continuing Characteristics

   (i) The professional has the conviction that he provides a service for the client which he believes the latter should have.

   (ii) The professional's service is unique, intellectual and personal. The profession provides formal

resources, techniques and knowledge but each practitioner provides a unique service since he determines the manner and judgement of how to utilise these resources in practice.

(iii) The professional must make every attempt to increase his knowledge in order to assure the client that every possible alternative has been considered in the provision of the service.

(iv) The professional has an obligation of

(a) Advising his client on the nature of the service.

(b) Reporting progress and the expectations of solutions to the problem.

3. Evaluative Characteristics

(i) Professional colleagues may only judge the competence of a professional on a single performance.

(ii) The client can, over time, evaluate the service provided by the professional with reference to,

(a) The extent to which client needs have been met in the past.

(b) The comparison of several professions who may be in the client's employ.

(c) Other clients who have employed a particular professional.

(d) The reputation of a particular professional among his colleagues.

<u>An assessment and comparison of the models</u>

Each of the models provides a different perspective on professions. Some are concerned with the societal level whilst others are more concerned with occupational, intra occupational and individual levels of analysis. Their similarities are as important as their differences.

The taxonomic model provides a framework for investigating the characteristics possessed by an occupation. There is a

consensus on certain dimensions but considerable diversity still exists. The consensus, from Figure 13, is that a profession can be characterised by the following,

(i) Skill based on theoretical knowledge
(ii) Prolonged training and education
(iii) Organisation
(iv) Adherence to a code of conduct
(v) Assessment of competence
(vi) Complex occupation
(vii) Stress on altruistic service

There is an acceptance, by taxonomic theorists, that professionalism is the only form of ideology and occupational control available to professions and as such it tends to be accepted without question.

Hall's (1969) dual component model is essentially taxonomic in nature but has the advantage of being more empirically based. Wilensky's (1964) chronological sequence of professionalisation is used to define the structural component whilst the attitudinal component represents a number of occupational traits presented at the individual level. Empirical research has indicated that the dual components co-vary and can take account of the considerable diversity in occupational professionalisation. However, Hall's model, like the taxonomic models in general, is ahistorical and important developmental impetuses at the societal level are not explored. However, unlike the taxonomic approach at the occupational level it does, through the structural and attitudinal dimension of autonomy, alude to the existence of occupational power.

The power dimension is specifically treated under the Neo Weberian and Marxist models and the typological approach of Johnson (1972). Johnson focuses on the consumer-producer relationship and mechanisms for reducing uncertainty. He suggests that professionalism, as an institutionalised means of occupational control, is one of a number of possible means of controlling the consumer-producer relationship. By exploring the existence of other forms, Johnson is able to distinguish the relative effects of each on a profession.

The Neo Weberian perspective views professionalism and professionalisation as strategies for occupational closure and potential for enhancing market standing. The Marxist perspective is more general. It is concerned with linkages between professions, the power distributions in society and support for the capitalist class structure.

However, unlike Hall's model, the Neo Weberian and Marxist models and Johnson typology are more theoretical. Apart from suggestive descriptions in the literature, applications to particular professions are limited.

Haga's (1978) model is concerned with the causes of a profession. The model lays particular emphasis on the audience (Significant Others) to whom a particular occupation presents its notion of professionalism. The importance of significant others to a profession is related to the degree of cruciality and mystique possessed by an occupation. By implication, uncertainty is a factor which lies behind these dimensions. Furthermore, cruciality and mystique are intimately related to status and the consequent potential for occupational power. Haga couches it in terms of intimidation as the ultimate weapon for a true profession.

Gordon and Ross's (1962) model operates at the individual level and like Johnson's typology and Haga's model it is concerned with influence, power and professional authority. The model highlights the provision of a unique service and the duty to continued professional development. However, unlike the taxonomic theorists, Gordon and Ross do not accept the myth of peer regulation. They consider it is only applicable to a single performance by a professional. The client has the ability, over time, to assess the work of a particular professional and exercise a degree of choice. This is supportive of Johnson's contention that professionalism is vulnerable, over time, through the exercise of consumer choice. Gordon and Ross, Haga and Johnson all stress the importance of the professional client authority relationship. However, only the latter indicates that through the exercise of power and influence, by either the client or the professional (or a third party under

mediation), can different forms of occupational control emerge.

Bucher and Strauss's (1961) process model views the dynamics of power from a different perspective. Their model is intra-occupationally oriented and highlights the potential for conflict or consensus by the exercise of intra-professional power and influence. Furthermore, it points to the fact that professional elites, in their institutional positions of power, have the ability to mould a profession depending on whichever segmental group is in the ascendency. Bucher and Strauss do not, therefore, view professions as static but dynamic institutions that are as susceptible as any other organisation to political manoeuvering. The taxonomic literature fails to consider this perspective but suggests that professions are a community of colleagues. Johnson also questions this myth but he expresses it as the effects of the particular emergent form of occupational control on the operations of a profession.

Section Summary

A number of models for analysing professions have been presented. These are the taxonomic approach, Hall's (1969) dual component model, the Neo Weberian and Marxist perspectives, Johnson's (1972) typology of collegiate, patronage and mediation, Haga's (1978) cruciality-mystique model and finally, Gordon and Ross's (1962) professional status model. Each model provides a different perspective for analysing issues raised in the chapter on Quantity Surveying. The similarities and distinctions between the models have been explored.

Chapter Notes

1. Definitions of a profession abound in the literature, samples are given below. Carr-Saunders and Wilson (1933) refused to venture a definition. However, they are of the opinion that a complex set of characteristics delineate a profession from other vocations. For the traditional professions these characteristics were prolonged and specialised training, a technique enabling them to render a specialised service to the community. Payment for the service being fixed by fee or salary.

   Cogan (1953, 1955) concludes he can find no definitive statement on a profession but does however suggest a tentative definition "...A profession is a vocation where practice is founded upon an understanding of the theoretical structure of some department of learning or science, and upon the abilities accompanying such understanding. This understanding and these abilities are applied to the vital practical affairs of man. The practices of the profession are modified by knowledge of a generalised nature and by the accumulated wisdom and experience of mankind, which serve to correct the errors of specialism. The profession, serving the vital needs of man, consider its first ethical imperative to be altruistic service to the client" (1955:320).

   Millerson (1964) is considerably less grandiose. He defines it to be "...a type of higher grade, non manual occupation, with both subjectively and objectively recognised occupational status, possessing a well defined area of study or concern and providing a definite service, after advanced training and education" (p.10).

   Haga (1975) defines a profession to be "...A field of work that enjoys a higher social status than occupations not so ordained" (p.172).

   The Monopolies and Mergers Commission (1970), like Carr-Saunders and Wilson, would not venture a definition of a profession. They did, however, suggest the following guidelines would serve for the enquiry,

(a) Practitioners apply a specialised skill which enables them to offer a specialised service.

(b) The skill had been acquired by intellectual and practical training in a well defined area of study.

(c) The service requires a high degree of detachment and integrity on the part of the practitioner in the exercise of judgement on behalf of the client.

(d) Collectively, practitioners have a sense of responsibility for maintaining the competence and integrity of the occupation as a whole.

(e) Certain methods of attracting business are forbidden.

(f) Practitioners are organised in bodies that may or may not have a form of state regulation. They have machinery for testing and regulating standards of competence and conduct.

2. Vollmer and Mills (1966) use the term professionalism to refer to an ideology and associated activities that can be found in many and diverse occupational groups where members aspire to professional status.

   Haga (1975) defines the term as referring "...to a behaviour acting like a member of a profession. It is an affectation of the outward symbols of profession" (p.173).

3. Vollmer and Mills (1966) consider the term to indicate a dynamic process in which many occupations change certain crucial characteristics in the direction of a 'profession'. The crucial characteristics are specifiable criteria of professionalisation.

   Millerson (1964) defines the term as "...the process by which an occupation undergoes transformation to become a profession". Furthermore, "...(it) entails conformity, internalisation and sanction of specific norms...by members of a particular occupation" (p.10).

   Haga (1975) defines the term as "...The deliberate, programmed process that members of an occupation undertake in trying to convert to a profession" (p.173).

4. Millerson (1964) believes the Qualifying Associations have contributed directly to the changing values of National Certification. This route to professional qualification now constitutes a second and more arduous road since it no longer has the comparable standard of university degree.

5. Surveying is classified by Carr-Saunders and Wilson (1933) as a multi-portal system because exemption is granted from all examinations in Estate Management from either London or Cambridge university.

6. Johnson (1972) in his discussion of much of the literature on the professions divides it into trait and functional theories. Klegon (1978), like Johnson, notes there is considerable overlap and treats both theories under the taxonomic approach.

7. The structural attributes are concerned with linkages in the social structure. The attitudinal attributes are concerned with how the individual perceives his work situation. These may be the most crucial of all since they may well be related to professional behaviour (Hall 1969).

8. Bucher and Strauss (1961) based their process model on the medical profession.

CHAPTER 4

THE ORGANISATIONAL PERSPECTIVE

ORGANISATIONAL STRUCTURE

Organisational structure is the sum total of the ways in which labour is divided into distinct tasks and co-ordination achieved among them (Mintzberg 1979:2). Organisational structure serves two basic functions. First, it minimises or regulates the effects of individual variations in behaviour on the organisation. It ensures individuals conform to organisational requirements. Second, structure is the setting in which power is exercised by delineating those positions that have it. It is the setting in which decisions are made and largely determines the information flowing into them. It is also the setting in which organisational activities are carried out (Hall 1977:102). From a different perspective, however, structure may only exist in the minds of individuals (Hunt 1972). A number of different types of structure exist to cope with varying degrees of external and internal uncertainty (Hunt 1979, Mintzberg 1979, Robbins 1983). The most commonly designated types in the literature are - the simple structure, the mechanistic and professional bureaucracies (after Weber), the divisionalised form, the organic-mechanistic (Burns and Stalker 1961) and the adhocracy.

Two distinct approaches have been adopted in the literature to measure organisational structure. They are the objective and subjective methods (Payne and Pugh 1975). The former is evident in those studies using the methodology developed by the Aston researchers (Child 1972, Grinyer and Yasai-Ardekani 1980, Hinings and Lee 1971, Pugh et al 1963, 1968, 1969). The latter approach is represented by the work of Aiken and Hage (1967), Hage and Aiken (1967a,1967b,1969), Hall (1963), Hall and Tittle (1966), Hunt (1972). Objective and subjective measures of structure have shown only moderate relationships with each other. However, different objective measures of structure have produced reasonably stable relationships (Payne and Pugh 1975). Kmetz (1978) used both approaches as a comparison. The data supported the view that they were different measures. He concluded,

however, this would not make one valid and the other invalid. The important point is the theoretical perspective adopted by the researcher..

The following section deals with the major components of structure represented in the literature, namely, complexity, formalisation and centralisation.

Complexity

Complexity is "...the degree of structural differentiation within a social system" (Price 1972:70).

Three dimensions of complexity are usually differentiated in the literature. These are (Hall 1977);

Horizontal differentiation, referring to the sub-division of the task performed by an organisation among its members. The task can be broken down and assigned to highly trained specialists who perform a comprehensive range of activities. These can be non-routine and variable. The tasks can also be minutely sub-divided to allow performance by non-specialists. These will be routine and uniform (Hall 1977).

Vertical differentiation, referring to the depth of the hierarchy. An assumption is often made that authority is distributed according to hierarchical level. However, according to Hall (1977), a false hierarchy may be wrongly observed if levels, as defined by the organisation, are used. This will be especially true in professional organisations where salary ranges do not exist for job titles and titles may change without an apparent change in task. Alternatively, a professional may perform a wider task with a subsequent increase in salary, but no change in job title.

Spatial dispersion, referring to either horizontal or vertical differentiation where activities and personnel are dispersed spatially by separation of power centres or tasks.

Hall noted these three dimensions can vary together or independently. However, Price (1972) argued there is little agreement among researchers on conceptualising complexity either as a single concept with a series of dimensions or

as a series of separate concepts. Furthermore, Price argued that dispersion should be measured according to dispersion of membership not dispersion of operating sites. Price does not include spatial dispersion within the notion of structural differentiation.

Formalisation[1]

Formalisation is "...the degree to which the norms of a social system are explicit". (Price 1972:107). Formalisation is not to be equated with the use of written norms. They are a part of formalisation but unwritten norms and standards can be equally as binding as codified norms (Hall 1977, Price 1972).

//Organisations formalise behaviour to reduce its variability and allow it to be controlled and predicted. Formalisation represents the extent of organisational discretion for an individual and can occur in three ways. First, the organisation can attach behavioural specifications to the job in the form of a job description. Second, the workflow can be formalised by attaching specifications to the work. Third, by using rules to specify actions to be taken in all situations and collecting them in a policy manual (Mintzberg 1979).

Formalisation and training are methods of co-ordination. The organisation can stress one or the other but not both equally. They are, therefore, substitutes (Mintzberg 1979).//

Centralisation[2]

Centralisation is "...the degree to which power is concentrated in a social system" (Price 1972:43).

The major defining characteristic of centralisation is the determination, in advance, of the power distribution by the organisation. The degree of organisational centralisation indicates the extent to which the organisation trusts personnel to make decisions or evaluate themselves (Hall 1977). Power distribution varies along a continuum from centralised to decentralised (Mintzberg 1979).

Decentralisation can occur vertically and horizontally. Vertical decentralisation is the distribution of formal

power down the line hierarchy. Horizontal decentralisation refers to informal power and represents the extent to which decision-making power rests outside the normal managerial line hierarchy. The more professionalised an organisation the more the structure will be decentralised both vertically and horizontally (Mintzberg 1979).

The relationship between complexity, formalisation and centralisation

There is an inverse relationship between centralisation and complexity (Robbins 1983). Decentralisation is associated with high complexity. The centralisation formalisation relationship is ambiguous. Robbins notes high formalisation can be found coupled with either a centralised or decentralised structure. If employees are unskilled there will be a greater degree of rules and regulations to guide actions. Managers tend to keep authority centralised. If professionals are employed then low formalisation may be coupled with decentralisation. However, in the latter case decentralisation is selective. Professionals prefer decentralised decision-making in matters affecting work-related issues. This need not apply to the appraisal of personnel performance or to strategic organisational decisions (Robbins 1983).

Robbins believes professionals may want the predictability associated with standardised personnel matters. Decentralisation may, therefore, be coupled with extensive rules and regulations in this area. Furthermore, Robbins also believes that professionals are more concerned with the technical aspects of their work and consequently lack the interest to be involved in strategic organisational matters. This can result in low formalisation and centralisation, with centralisation restricted to strategic decisions rather than professional tasks where it will have little impact.

Factors affecting organisational structure

The following discussion will be restricted to considering the effects of the authority structure, the environment, technology and organisational size on structure since they are the most likely to influence individuals at the work role level.

1. Authority structures within organisations.

Etzioni (1964) distinguished three types of power. These were,

Type	Means of enforcement
Coercive	Physical threats
Utilitarian	Goods and Services
	Money (essentially symbolic but having a similar effect)
Normative	Prestige
	Esteem
	Social symbols - love and acceptance

Organisational commitment will depend on the type of power used and varies from

Increasing Commitment

Coercive Utilitarian Normative

Furthermore, the type of power used will also vary depending on organisational rank. Less alienating means will be used as organisational rank increases (Etzioni 1964).

The labels 'complex' and 'formal' organisations are frequently used in the literature (Blau and Scott 1963, Etzioni 1961). Hage and Aiken (1967) noted they have an empirical foundation but essentially refer to different types of power distribution within organisations. Complex organisations are more likely to be decentralised with considerable reliance on the skill and expertise of members. Formal organisations are more likely to be centralised and rely on rules and procedures for control. The former, typical of an organisational setting where professionals are employed, will rely on self-control whilst the latter will place a greater emphasis on close supervision and occur where members have not been professionally trained.

The presence of professionals in an organisational setting can produce potential problems for the methods of organisational control. Knowledge, the supposed mainstay of

professional practice; is highly individualistic in its application. This is diametrically opposed to the organisational principle of administrative authority which assumes a power hierarchy in order to stress compliance with rules and procedures through superiors (Etzioni 1964).

2. The Environment

The effects of the external environment on organisations has received considerable research interest (Burns and Stalker 1961, Emery and Trist 1965, Lawrence and Lorsch 1967, Stewart 1970, Thompson 1967).

The environment impinging on organisations has been hypothesised to have four basic dimensions (Mintzberg 1979). These are,

(a) Stability

This can range from stable to dynamic where changes are unexpected. A stable environment will allow an organisation to predict work patterns. A dynamic environment makes work uncertain or unpredictable.

(b) Complexity

This can range from simple to complex. Organisational structures will be affected through the ease with which work can be understood by the organisation. A complex environment requires an organisation to have extensive knowledge. As the environment becomes more simple the organisation is able to break it down for easier understanding.

(c) Market diversity

This can range from integrated to diversified. Market diversity results from a range of clients, services or geographical areas in which the organisation markets its outputs. The organisational structure will be affected through the diversity of work to be undertaken.

(d) Hostility

The environment can range from munificent to hostile.

Organisational relationships with unions, government and pressure groups will affect the degree of hostility. The availability of resources and competition will also be of importance in the extent of hostility facing an organisation. The dimensions of hostility and stability are closely related since hostile environments are typically dynamic. Hostility will affect structure through the predictability of work and the speed of response required from the organisation.

Table 16 sets out the types of organisational structures expected in a two dimensional matrix of environmental types.

3. Technology

Technology refers to the process or methods used to transform inputs into outputs in the organisation (Robbins 1983). Technology has produced a considerable amount of debate in the literature as to its exact impact on structure (Aldrich 1972, Child and Mansfield 1972, Hickson et al 1969, Perrow 1967, Pugh et al 1968, Thompson 1967, Woodward 1965). Hunt (1972) concludes the term is too broad for useful research and prefers to use the'Technical System' as his nomenclature. Hunt defines the technical system as,

> "...the collective instruments introduced into the action system, including all physical influences which operate in conjunction with members but which are themselves systems independent of members" (p.100).

4. Technology and Task

In line with Hunt's reasoning the present study has not measured technology per se but has concentrated on the nature of the task undertaken by the individual. It is at the level of the individual job or operating core where technology, if it has any real effect, will be felt, (Gerwin 1979, Robbins 1983). Furthermore, jobs can be specialised in two dimensions its 'breadth' and 'depth' (Mintzberg 1979). Breadth refers to how many different tasks are contained in each job and how broad or narrow these tasks

Table 16 Dimensions of environment
Source Robbins (1983:153)

	SIMPLE	COMPLEX
STATIC	Low perceived uncertainty Environment Small number of factors and components in the environment; these factors and components are somewhat similar to one another, remain basically the same, and are not changing. Structure High complexity, high formalisation and centralisation. Examples Container firms (Lawrence and Lorsch 1967), mass production manufacturing firms (Woodward 1965).	Moderately low perceived uncertainty Environment Large number of factors and components in the environment; these factors and components are not similar to one another but remain basically the same. Structure High complexity, high formalisation and decentralisation. Examples Hospitals, universities.
DYNAMIC	Moderately high perceived uncertainty Environment Small number of factors and components in the environment; these factors and components are somewhat similar to one another, and they are in a continual process of change. Structure Low complexity, low formalisation and centralisation. Examples Entrepreneurial firms where chief executive maintains tight, personal control.	High perceived uncertainty Environment Large number of factors and components in the environment; these factors and components are not similar to one another and they are in a continual process of change. Structure Low complexity, low formalisation and decentralisation. Examples Plastics firms (Lawrence & Lorsch) NASA, electronics firms.

are. Depth refers to the control over the work. Mintzberg encompasses these two components under the concept of job specialisation.

5. Organisational size

Size is "...the scale of operations of a social system" (Price 1972:174). The effects of organisational size on structure has probably produced one of the most controversial debates in the organisational literature. Size as an important determinate of structure is supported by Blau and Schoenherr (1971) and the Aston studies (cited previously). However, the relationship is not without its critics (Aldrich 1972, Hall, Haas and Johnson 1967). Hall (1977), in reviewing a considerable body of research evidence on the effects of organisational size, concluded there was some agreement on how to measure size but little agreement on the impact of size on structure.

Current research evidence muddies the waters even further. The traditional method of measuring organisational size (especially evident in the Aston studies) is to take a simple count of the number of employees. Argarwal (1979) used three measures of size in an investigation of life assurance companies. These were the total number of salaried employees, total assets and dollar volume sales. The data indicated that size measures were all highly correlated and proportional to each other. On the size/structure debate Argarwal concluded the estimate of the relationship was independent of the size measure used. However, this was subject to the qualification that size measures are highly correlated and proportional, an assumption that should not be assumed a priori especially if samples are heterogeneous in terms of the industries used.

Grupta (1980) compared three different perspectives on measuring size. These were,

the cycles approach where structure is viewed as a set of interrelated events or cycles.

the energic approach, which uses the amount of energy imported by the organisation as an open system and,

the components approach, which is the traditional approach of counting the number of individuals involved in carrying out activities.

Gruta concluded the alternative measures were only moderately correlated and as a consequence the size/structure relationship could be operationally specific. This latter point is taken up by Kmetz (1978) who noted the majority of studies he reviewed, where size was the principle correlate of structure, had all used the Aston methods and measurement. Results from other studies, that had used different measures and designs, disagreed with the Aston group. In an attempt to clarify the issue Kmetz utilised objective and subjective measures of structure and concluded that the data generally supported the criticisms of the Aston studies. Kmetz suggested, therefore, that the frequency of importance of the size/structure relationship, using the Aston design and measures, could be attributable to a masking effect of the methodology rather than a valid relationship. Furthermore, an investigation of the 22 studies reviewed by Kmetz (Table 1 1978) indicates the following information,

Table 17 Breakdown of research studies into major classifications according to studies undertaken in the area and number of organisations investigated
Source Adapted from Kmetz (1978 Table 1)

Classification	Simple count of studies	Organisational Count	
Manufacturing alone	11	558	manufacturing
Manufacturing and service	3	95	manufacturing
		73	service
State agencies etc	5	53	state agencies
		16	health and welfare agencies
		120	state employment units
		36	hospital units
Others	3	75	diverse
		153	farm co-ops
		27	worker sub units

Investigations of the size/structure relationships have tended to concentrate in two major areas, namely, manufacturing and welfare organisations. However, results are generally expected to apply globally. It is not surprising that the size/structure relationship is ambiguous especially in view of Argarwal's comments on sample heterogeneity. Child's (1972) study is especially prone in this respect since his national study was stratified by 6 industries. Using the Aston methodology, Child's (1972) results only partially supported the original Aston studies on the size/structure relationship. A further cautionary note can be added from Robbins (1983). He notes that a major proportion of the organisational literature is made up of studies exclusively of medium or large organisations. The smaller organisations, especially those of less than

100 members have been overlooked by theorists. Robbins notes the inherent assumption is that findings are universally appropriate. Those studies that have investigated small organisations have indicated the inapplicability of large sections of organisational research and theory. He further adds that issues such as vertical differentiation, decentralisation or information control are of lesser importance or play a different role in small rather than large organisations.

Robbins (1983) reviewed evidence on the size indicator. Size was found to have a significant influence on vertical differentiation. The effect of size on spatial dispersion was unclear. Increasing formalisation was closely associated with increasing organisational size. Furthermore, increasing size was associated with decentralisation.

Research evidence on smaller organisations indicates that size has a direct and high order effect with structural variables (Blau et al 1966, Paulson and Stump 1979). Bryman et al (1983) indicated the inclusion of organisational sizes below 100 did not alter the relationship between size and the Aston measure of specialisation. Paulson (1980) suggested some interesting conclusions on the size/technology issue. In an investigation of small retail businesses in the private sector (average size 20.5 with 90% having fewer than 50 employees, N=77) the data supported the conclusion that size was more important than technology in explaining complexity. Evidence from other research indicated technology was more important than size for explaining complexity in the public sector.

In the UK Architectural profession Hillier found a subtle relationship between organisational size and work responsibility. His findings were,

(i) The design process was divided into <u>strategic</u> ie dealing with the client end and <u>tactical</u> ie dealing with the construction end. In larger organisations, regardless of whether they were in the public or private sector, there was a

tendency for architects to be more involved in strategic design and less in tactical design. This was due to the size factor alone and not a public/private split.

(ii) The organisational structure was found to be more of a hindrance than a help, especially in the public sector. This varied with size of practice but the larger private practices had more constructive than destructive structures.

(iii) Using a typolcgy of organic, hierarchical tree and mixed structures, the data indicated that smaller practices tended to have strong organic forms with minimal hierarchical differentiation. As size increased, even for the largest private practices, the structure ranged from organic to mixed with relatively few of the large practices having a pure hierarchical tree form. In the public sector the structure of practice always reflected a pure hierarchical tree form.

Organisational typologies

A number of typologies have been produced by theorists on organisations. They are useful in highlighting important points that arise in the diverse organisational settings where individual Quantity Surveyors practice their occupational techniques.

1. The Blau Scott typology of Formal Organisations

Blau and Scott (1963) suggested four types of formal organisation. The Mutual Benefit Association has been aluded to in a previous chapter dealing with professions and the Qualifying Association. The remaining three were,

(a) The Business Concern

The prime beneficiaries are the owners when the firm is a private company. It will be operated for a profit. The dominant problem will be maintaining operating efficiency to enable the organisation to survive and grow in competition with other firms.

Operating efficiency is the supreme objective within externally imposed constraints. Blau and Scott consider the share corporation an example of a Mutual Benefit Association since the shareholders are the prime beneficiaries.

(b) The Commonweal Organisation

The prime beneficiaries are the public at large. The Commonweal Organisation performs either a protective function or serves the community in an administrative capacity. The public at large are both the owners and beneficiaries. The problem facing the Commonweal Organisation is the maintenance of democratic control in order to regulate the ends served by the organisation. It faces, in reality, a paradox. It must maintain democratic control whilst emphasising efficiency through internal bureaucratic structuring.

(c) The Service Organisation

The prime beneficiary will be the client and the emphasis will be on the provision of a professional service. Client welfare is the chief concern. The underlying assumption of this type of organisation is that clients are not qualified to determine what is in their best interests.

2. Etzioni's (1961) Power typology

Etzioni's typology differs from that of Blau and Scott (1963) by emphasising the dominant form of power exercised on lower members within the organisational framework. The Blau-Scott typology is concerned with the prime beneficiaries of organisational outputs. The Etzioni typology compliments the work of the former by highlighting the internal power dynamics of organisations. The coercive type distinguished by Etzioni will not be discussed since it is of significance to the operations of the Quantity surveying profession. The discussion will therefore be restricted to Utilitarian and Normative Organisations.

Utilitarian Organisations are organisations where the

major means of control over lower participants will be remuneration. Normative organisations are those where the major means of control is social in origin. The professional organisation is one of nine types of Normative Organisation suggested by Etzioni. However, it is less typical since remuneration plays an important part in the compliance structure. Professional organisations can be distinguished according to the rank at which professionals are employed. These are,

(i) those where professionals constitute the middle ranks
(ii) those where the professionals are lower participants and where professional goals are pursued.

Professional work is characterised by high intrinsic satisfaction and positive involvement. The use of symbolic sanctions will be highly effective. However, organisational commitment is not as high in other Normative Organisations since remunerative rewards are stressed to an extent.

Etzioni (1964) further distinguished professional organisations in terms of the length of training involved. The full fledged professional organisations are those requiring training in excess of five years. They are principally involved in the creation and application of knowledge. Professionals will have the guarantee of privileged communications and they will often be concerned with matters of life and death.

Semi-professional organisations are those requiring shorter training, usually less than five years. They are more concerned with the communication of knowledge and less with its application. Furthermore, professionals are not guaranteed the rights of privileged communication and they are also unlikely to be involved in matters of life and death.

Each type of professional organisation is related to administrative authority in a different manner. The former is characterised by professionals having superior

authority over non-professionals in matters related to major professional goals. The latter is characterised by professional work having less autonomy and subject to greater control by the managerial hierarchy.

Etzioni (1964) differentiated two other types of organisation in which professionals can be found. The Service organisation (conceptually different from Blau and Scott 1963) where professionals are provided with the instruments, facilities and auxiliary staff necessary to perform their work. However, professionals are not employed by the organisation nor subordinate to its administrative hierarchy. The other type of organisation is one where goals are non-professional eg industry. Here professionals are normally assigned to special departments or divisions.

In sum, professional organisations can be distinguished by their major goal activities, the rank at which professionals are employed, the length of training required, the privileges enjoyed by professionals, the professional-administrator relationship and the type of compliance structure utilised to control them.

3. The Scott and Hall typologies

Scott (1965) developed a typology of professional organisations related to the degree of autonomy granted to the professional by the administrative control structure. These were,

(a) The autonomous professional organisation where organisational officials delegate to professional employees considerable responsibility for defining and implementing goals, setting and maintaining performance standards. The external surveillance of professionals is expected to be minimal. Furthermore, administrative and professional tasks are reasonably well demarcated in terms of boundaries for responsibility. These demarcations will probably remain even if professionally trained individuals hold positions of administrative

responsibility. Hall (1969) further elaborated on this organisational type. Hall believes norms and sanctions are established according to the expectations of professionals involved in task performance. Professional judgement is maximised since the individual is expected to reach his own conclusions.

(b) The heteronomous professional organisation where professionals are subordinate to an administrative framework. The degree of autonomy granted to professionals is relatively small. An elaborate set of rules and a system of routine supervision exist to control much of the professional work. Furthermore, there is considerable difficulty in determining areas of work for which professionals, either individually or collectively, are held responsible. Hall (1969) suggested a flat organisational structure is in evidence with professionals often having the same title and small pay differentials. Advancement will normally be achieved by professionals leaving the profession and embarking on a career in managment.

Hall (1969) suggested a further two work settings within which professionals can be found. These were,

(a) The solo practitioner who, according to Hall, is an archetypal image of the past. Furthermore, the solo practitioner is believed, by Hall, to be less professionalised than professionals in other settings.

(b) The professional department can occur in the private or public sectors. It is the setting most likely to confront the professional with severe and frequent conflict between professional and organisational norms.

4. A practical assessment of each of the typologies

The Blau and Scott (1963) typology is useful for delineating, in a global sense, the types of organisations confronting the individual. Within the organisation Etzioni's typology of power will enable the impact of

compliance structures on individuals in lower organisational positions to be considered. Etzioni's distinction between full fledged and semi-professional organisations, although useful as a guide, does however, suffer from methodological problems.

Harries-Jenkins (1970) argued that length of training is not a reliable indicator of professionalisation. Etzioni's distinction could, therefore, mask important occupational differences in work practice by prematurely classifying professional organisations purely on length of training alone.

The Scott (1965) and Hall (1969) typologies further elaborate on the professional work setting. However, on comparing perspectives, subtle differences occur in Hall's interpretation of Scott's typology. Scott (1965), in his article, clearly envisages autonomous and heteronomous organisations existing within the bounds of an administrative framework. The important point, to Scott, is the degree of autonomy delegated to professionals by the administrative framework. The implicit assumption is that the organisational framework of which the professionals form a part, sets the major goals. Hall, although utilising and building on Scott's typologies, argued that professionals determine the structure of the autonomous professional organisation. A view which suggests any administrative structure is subordinate to professional goals. Hall's professional department is more akin to Scott's autonomous professional organisation. It would appear that Hall has over-elaborated Scott's position. The former's position may only be partly defensible if, in his conceptualisation, he was considering large professional bureaucracies of the type described by Montagne (1968) and Sorensen and Thomas (1974). However, this still fails to negate the differences in perspective on the importance of the administrative framework. Based on Etzioni (1964), the large professional bureaucracy would be pursuing professional goals with administrative authority subordinate to professional. Scott would appear not to be describing this type of organisation in his description of the autonomous professional organisation.

The general impression gained from Etzioni (1961, 1964), Scott (1965) and to a qualified extent Hall (1969) is their concern with professionals in large, usually public sector, organisations or large departments in industrial concerns. Mintzberg (1979), in his discourse on professional bureaucracies, is also concerned with large organisations. The organisational literature lacks, with a few exceptions, a body of knowledge on the structuring of private practice professional organisations in the small to medium size ranges (perhaps 3- 400 members). There is also a preponderence of research evidence of limited use, gained on occupations that are highly suspect in terms of their standing as professions within an organisational context. The work of Blau (1963), Blau and Scott (1963), Blau and Schoenherr (1971) and Scott (1965) report extensively on the work of professionals in organisations. Much of Blau's work is concerned with social welfare agencies where professional status, for social workers, has been a matter of considerable debate in the literature. This issue will be further elaborated in later sections.

Section Summary

The importance of organisational structure has been highlighted by a variety of researchers (Child 1972, Hall 1977, Mintzberg 1979). Two approaches have been used to measure organisational structure. They are the objective and subjective approaches (Payne and Pugh 1975). The major components of structure, namely, complexity, formalisation and centralisation, have been defined and discussed (Hall 1977, Mintzberg 1979, Price 1972). The interrelationships between the three structural components is complex and to an extent depends on the degree of skill possessed by organisational members. Professionals expect decentralised decision-making on work related issues. They are prepared to accept centralised decision-making on personnel matters and strategic organisational issues (Robbins 1983).

Those variables considered likely to have an important effect on the individual-authority structures, the environment, technology and organisational size - have been discussed.

Professional power, based on knowledge, can be diametrically opposed to administrative power based on an authority hierarchy (Etzioni 1964). Complex and formal organisations differ in their power distribution (Hage and Aiken 1967) and consequently differ in the type of skill expected of individuals. The environment has four basic dimensions and each will affect organisational structures in different ways (Mintzberg 1979). Organisational/size structure relationships are a controversial issue in the literature. Hall (1977) believes there is considerable agreement on the measurement of size but not on how it affects structure. Argarwal (1979) and Gupta (1980) have presented evidence that questions the interchangeability of size measures. Kmetz (1978) has produced evidence, that has subsequently been interpreted within the context of the present study, to indicate that the size structure relationship has been researched on medium to large sized organisations, predominantly in manufacturing and welfare agencies (see also Robbins 1983). Research on the size/structure relationship for small organisations indicates it is complex (Blau et al 1966, Paulson and Stump 1979, Paulson 1980). However, on reviewing the evidence, Payne and Pugh (1975) concluded it is a variable that cannot be ignored in organisational research. Hillier (1979) has demonstrated the importance of a size/structure relationship for the UK Architectural profession.

A number of organisational typologies have been discussed (Blau and Scott 1963, Etzioni 1961, 1964, Scott 1965 and Hall 1969) but they are not without their problems. The following section deals, in greater detail, with research on professionals and organisational structures.

PROFESSIONALS AND ORGANISATIONAL STRUCTURE

Professionals, as fee earning or salaried employees, are increasingly facing situations in employment that are highly structured as a consequence of the complexity of a technological society. Traditionally, the literature on professionals in organisations has tended to view norms

inculcated into the professional during training as incompatible with organisational norms. The validity of this assumption will be explored in the following sections. The subject matter will deal with the consequences of bureaucracy, reference group behaviour and the effects of structure on organisational commitment and conflict.

Professionalisation and bureaucracies

From an organisational perspective, professionalisation and bureaucratisation are equally acceptable alternatives for accomplishing organisational missions and co-ordinating and performing complex tasks (Hall 1977, Mintzberg 1979, Scott 1966). Professionalisation emphasises the internalisation of skills and the exercise of control through direct supervision. Only part of the total task is performed (Scott 1966). Mintzberg (1979) claims that as alternative co-ordinating mechanisms both cannot be stressed equally by the organisation. Furthermore, Hall (1977) proposes that the more professionalised the work force, and the greater the degree of formalisation, the greater the likli-hood of conflict and alienation among professionals. However, as one of a possible number of means of co-ordination, professionalisation does present the organisation with co-ordination problems due to specialisation (Blau et al 1966).

In their investigation of small bureaucracies (N=156) Blau et al discovered that professional staff required an increasing proportion of managerial staff than would be expected from a professionalised work force. This increase was to provide co-ordination of organisational activities rather than assist with direct supervision. This is in agreement with Etzioni (1964) who noted that professionals and administrators can co-exist depending on the nature of the goals served by each.

In professional organisations major goal activities will be professionally oriented and will be under the authority of professionals. In this instance it is unlikely that a recognised hierarchy will exist. To complement the work of professionals administrators may be organised in a

managerial hierarchy in order to perform the secondary activities associated with administrative functioning. Furthermore, there may be secondary professional activities requiring an administrative input. It is possible a hierarchy will exist in this situation. It may give the impression that professionals are subordinate to administrators. In non-professional organisations role reversal will occur. The managerial hierarchy will be performing the major goal activities of the organisation and in this instance professionals will be subordinate to administrators. Professionals are designated as holding staff positions, and since they are outside the main managerial line structure, they will enjoy some degree of autonomy (Etzioni 1964).

Blau and Scott (1963) compared professional and bureaucratic orientations and concluded that not all aspects of bureaucratisation were incompatible with professional judgement. Table 18 sets out a comparison of these orientations. Incompatibility arose only with hierarchy of supervision and organisational discipline. The incompatibility stems from the differing reference groups adopted by professional and organisational members. Professionals are regulated by external peer surveillance whilst bureaucrats are regulated through the managerial line hierarchy. Reference group orientation has received considerable empirical investigation.

Reference group orientation

Reference group behaviour has been investigated in a general way and more specifically in association with the cosmopolitan-local construct. The discussion will be structured to deal initially with research evidence on cosmopolitan (cosmo after Gouldner)-local orientations and then evidence of a more generalised nature.

The cosmopolitan local construct was developed by Gouldner (1957) in his study of a liberal arts college. Cosmos were characterised by low loyalty to the employing organisation, high commitment to specialised role skills and as having an outer reference group orientation. Locals were characterised as individuals with a high loyalty to the

Table 18 Professional and Bureaucratic Orientations - Similarities and Contrasts
Source Adapted from Blau and Scott (1963)

	PROFESSIONAL	BUREAUCRATIC
1.	Decisions and Actions Based on objective principles independent of individual cases	Body of abstract principles exist (rules)
	Principles rest upon and derived from body of specialised knowledge	
	Practice consists of applying principles to particular cases	Application of rules to particular cases
	Acquisition of knowledge and skill requires prolonged training	Training period shorter but indoctrination to organisational position required
2.	Specificity of Expertise Expertise in limited area	Expertise in limited area
	Authority limited to area of expertise	Restricted area of authority
3.	Professional client relationship Affective neutrality	Impersonal detachment
	Detachment allows exercise of reasoned judgement	Exercise of reasoned judgement
4.	Professional status Achieved by individual performance	Dependent on technical qualification
	Success dependent on performance in accordance with utilising principles of practice	Success dependent on objective and explicit official criteria
5.*	Abjuration of self interest Essential for client welfare	
	Service provided dependent on client need not ability to pay	
6.	Control structure Subject to control through voluntary association	Subject to hierarchical control
	Subject to internalised control through socialisation and long training	
	Judgement based on competence and subject to peer group	Competence judged by superiors

* Only applies in certain types of organisation

employing organisation, low commitment to specialised role skills and as having a higher incidence of inner reference group orientations. Gouldner (1958) factor analysed questionnaires used in the study with specific consideration given to reference group behaviour. He found four types of local and two types of cosmos. The cosmo-local construct has often been treated in the literature in a similar manner to professional bureaucratic orientations, namely, as a dichotomy. However, a number of research studies, including Couldner's (1958) analysis (although often ignored in the professional literature) have discovered that the orientation is not a straightforward dichotomy.

Blau and Scott (1963) after initially using the cosmo-local dichotomy in a County Welfare Agency, reclassified their data on professional/bureaucratic orientations. The reclassification into four types of group orientation[3] indicated a professional orientation was inversely related to organisational commitment. Professionals tended to be cosmos rather than locals. Furthermore, the data indicated it was reference group that was more significant for organisational loyalty than mode of training undertaken by individuals. Blau and Scott concluded it was the structure of the organisation rather than the structure of the profession that restricted opportunities for professional advancement. Only when the structure blocked advancement would a cosmo orientation become evident.

Glaser (1963) has suggested a modification to the normally accepted research evidence that cosmos and locals are two distinct types of orientation. His investigation of research scientists has indicated that it is a dual orientation of highly motivated individuals.

The dual orientation was dependent on the situation facing the individual. It was derived from institutional motivation that determined both high quality basic research and the accomplishment of non-research oriented organisational activities. The dual orientation arose where the

institutional goal of science was similar to organisational goals. The distinction between the orientations became evident only when there was a conflict surrounding the goals pursued by the organisation.

Goldberg (1976) has suggested that reference group behaviour is modified by three contextual variables. First, career stage was found to have a curvilinear relationship with reference group orientation. Second, the work environment rewarded locals with monetary inducements for organisational commitment. The organisation funded locals by meeting the costs of maintaining contact with their professional discipline. Third, reference group orientation was also modified by primary occupational role (managerial or technical). Goldberg used a sample frame of Israeli graduate engineers (N=170) and found that a cosmo : ; orientation was directed towards the professional discipline and a local orientation with a concern for clients. A combination of both orientations was optimal in encouraging practitioners to maintain and increase their expertise through close contact with the discipline and sustain their commitment to serving the client.

A cautionary note is in order for research on cosmos and locals. Flango and Brumbaugh (1974) replicated Gouldners (1957-58) study using 16 colleges and universities. Within the constraints of replication and, on subsequent re-analysis of their data without these constraints, they concluded that the number of dimensions comprising the construct was sensitive to different modes of analysis.

Greene (1978) although not specifically concerned with the cosmo-local orientation, investigated the relationship between organisational and professional identification, and role characteristics. His sample comprised senior scientists and engineers (N=247) employed in three organisations having similar characteristics. The results indicated that professional and organisational commitment were moderately and negatively correlated, indicating they are essentially independent orientations. However, Greene isolated four forms of identification, namely, the professional, the

organisational, the mixed and the indifferent. He concluded that professional and organisational identifications may be combined to provide additional orientations that are not necessarily compromising for the organisation. However, identification solely with either the profession or organisation was associated with role ambiguity and alienation. In certain circumstances, therefore, a failure to accept organisational norms could have unfortunate consequences.

Sorensen and Thomas (1974) discovered that differences in perceptions of bureaucratic and professional orientations were related to member socialisation and organisational position. Table 19 sets out their results.

Table 19 Bureaucratic and Professional Orientations[+] and Deprivation[++] by position
Source Sorensen and Thomas (1974:102)

	Orientations				Deprivation			
	Professional		Bureaucratic		Professional		Bureaucratic	
Position	Mean	S.D	Mean	S.D	Mean	S.D	Mean	S.D
	$\bar{X}$	S_x	$\bar{X}$	S_x	$\bar{X}$	S_x	$\bar{X}$	S_x
Partners (N=37)	144.0	12.1	151.3	13.6	-5.54	5.30	-4.51	6.26
Managers (N=38)	148.0	9.0	148.1	10.9	-7.07	7.22	-5.69	6.22
Supervisors/ Seniors(N=95)	150.5	9.7	139.4	12.9	-12.74	10.7	-1.60	7.45
Juniors (N=84)	152.6	10.0	133.7	11.8	-12.78	9.63	+2.58	7.64
F Ratios	6.7••		24.3••		15.5••		17.0••	

•$p \leq .05$
••$p \leq .01$
+ Higher score indicates higher orientation
++ Scores are net algebraic differences

Structure and organisational commitment and conflict

The previous section has dealt with the effects of reference group behaviour on different forms of commitment. Therefore, structure may play an important part in fostering commitment or producing conflict. The following section will look in closer detail at the nature of organisational commitment and the potential for conflict.

Organisational commitment

Morris and Steers (1980), in their study of non faculty members of a university, made the assumption that employee perceptions of structure constituted the reality of co-ordination and organisation of their work. Using a hetero-geneous sample of manual, clerical and professional administ-rative employees (N=262) Morris and Steers reported results that indicated decentralisation and functional dependence were significantly related to organisational commitment. They believed that commitment is an attitude that reacts in a similar manner to satisfaction (as an attitude). The structural organisation of tasks is related to emotional responses that develop during work. Morris and Steers have suggested that decentralisation and participative decision-making increase employee involvement and attachment. High functional dependence will increase an employee's awareness of his contributions to the work and organisation. Furthermore, increased formalisation may assist in job and role clarity and provide means to achieve work and organisational goals in possibly ambiguous situations.

The importance of formalisation in clarifying organisational practices has also been supported by Organ and Greene (1981). Using the same sample as Greene (1978) the results suggested that formalisation has opposing influences on alienation. However, in a more generalised sense, Organ and Greene believe that the positive effects of formalisation may allow access to resource and knowledge bases within the organisation that will lead to a greater sense of autonomy and power. Formalisation will provide a framework within which the professional can view his contribution to the organisation and

the contribution that the organisation can make to professional goals. Furthermore, it may reinforce many external norms for professionals and reduce role ambiguity. To this end Organ and Greene considered that managers should ensure that organisational rules and procedures are consistent with professional norms wherever possible.

Engel (1969) supports the foregoing evidence that optimal levels of procedural specifications may be necessary for effective performance by professionals. The sampling frame consisted of physicians (N=663) working within three organisational settings. The data supported the view that a curvilinear relationship existed between the degree of bureaucracy and professional autonomy. Those in moderately bureaucratic settings perceived themselves to have a greater degree of autonomy.

Bartol (1979) found that many of the negative outcomes normally associated with professionalism were not evident with the organisational commitment of computer specialists (N=159). Bartol constructed a scale to measure five dimensions of professionalism.[4] The results indicated that autonomy ($p \leq .05$), professional commitment ($p \leq .01$) and ethics ($p \leq .05$) were all positively related to organisational commitment. Collegial maintenance of standards was negatively related ($p \leq .05$). Professionalism was not related to role conflict, role ambiguity or turnover. However, Bartol's sample of computer specialists were members of a relatively new occupation. They would be predominantly based in organisations and may lack the occupational status nornally attributed to a profession. Therefore, it would be unwise to consider Bartol's findings as anything more than tentative. Thornton (1970), in his investigation of junior college teachers (N=383) in 27 public junior colleges, concluded that professional and organisational commitment can be compatible under certain conditions. The important criterion is the extent to which the professional experiences and perceives the organisational situation as reinforcing and supporting the principles of professionalism.

Professional/Organisational Conflict

Kornhauser (1962) has suggested four areas that are likely to produce conflict from professional/organisational incompatibility. First, the organisation may pursue goals of excellence or profit. Second, the organisation may emphasise hierarchical control rather than control exercised through expertise. Third, professional incentives are considered to transcend organisational and geographical boundaries whereas the primary reward mechanism in organisations is internal advancement. Finally, the degree of influence that can be exerted in terms of ultimate decision-making power. Scott (1966) is less concerned with the profit/excellence motive conflict but agrees in principle with the other areas highlighted by Kornhauser. Scott specifically deals with professional/bureaucratic incompatibility. He distinguishes the following areas of potential conflict, professional resistance to bureaucratic rules and superiors, resistance to bureaucratic standards and expected conditional loyalty to the bureaucracy.

A number of criticisms have been made about assumptions underlying the existence of professional/bureaucratic conflict. Kerr, von Glinow and Schriesheim (1977), in an extensive review of the literature on professionals in organisations, concluded there is considerable confusion about the sources, intensity and inevitability of conflict between professionals and their employing organisation. The literature was inconsitent; contradictory and had few replicated studies. Furthermore, much of the evidence had used samples of scientists and engineers on the assumption they possessed professional status. Studies using these occupations also failed to highlight any differences between them. Kerr, von Glinow and Schriesheim also noted an assumption was frequently made that scientists and engineers had similar attitudinal and behavioural characteristics and these were compatible with those of a professional.

Aranya and Ferris (1983) argued that previous research had tended to assume rather than investigate the existence of professional/organisational conflict. Differences in findings

could, therefore, be attributable to situation specific causes or be peculiar to the organisation under investigation. Two other assumptions are also evident in the literature. First, the extensive use of the professional department as the setting for the investigation of conflict. Second, the assumption that professional departments have a similar structure and operating norms to the rest of the organisation (Hall 1967). Kerr, von Glinow and Schriesheim (1977) are of the opinion that generalising from one occupation to another and drawing conclusions about professional/bureaucratic conflict is valid only to the extent that the assumptions made by a researcher hold. Furthermore, systematic differences in professionalism, among occupations, may account for divergent research findings.

A number of empirical studies have investigated the existence of conflict. The relationship between the medical profession and administrators in the NHS was the subject of a study undertaken by Green (1975). He classified hospitals as autonomous professional organisations. Any conflict that arose was intra-professionally based and was concerned with competition over resources. In view of the considerable influence the medical profession exercised over the administration Green interpreted the existence of conflict more as political manoeuvering for autonomy. To Green the hospital was the client of the profession and as such the fundamental issue for professional/bureaucratic conflict was a drive for autonomy rather than an incompatibility between the structuring of task activities. In this respect the thrust for autonomy, by the profession, was concerned with control over the client. However, the situation was further complicated by administrators essentially acting as arbitrators between competing professional groups and simultaneously desiring professional status, as an occupation, for themselves.

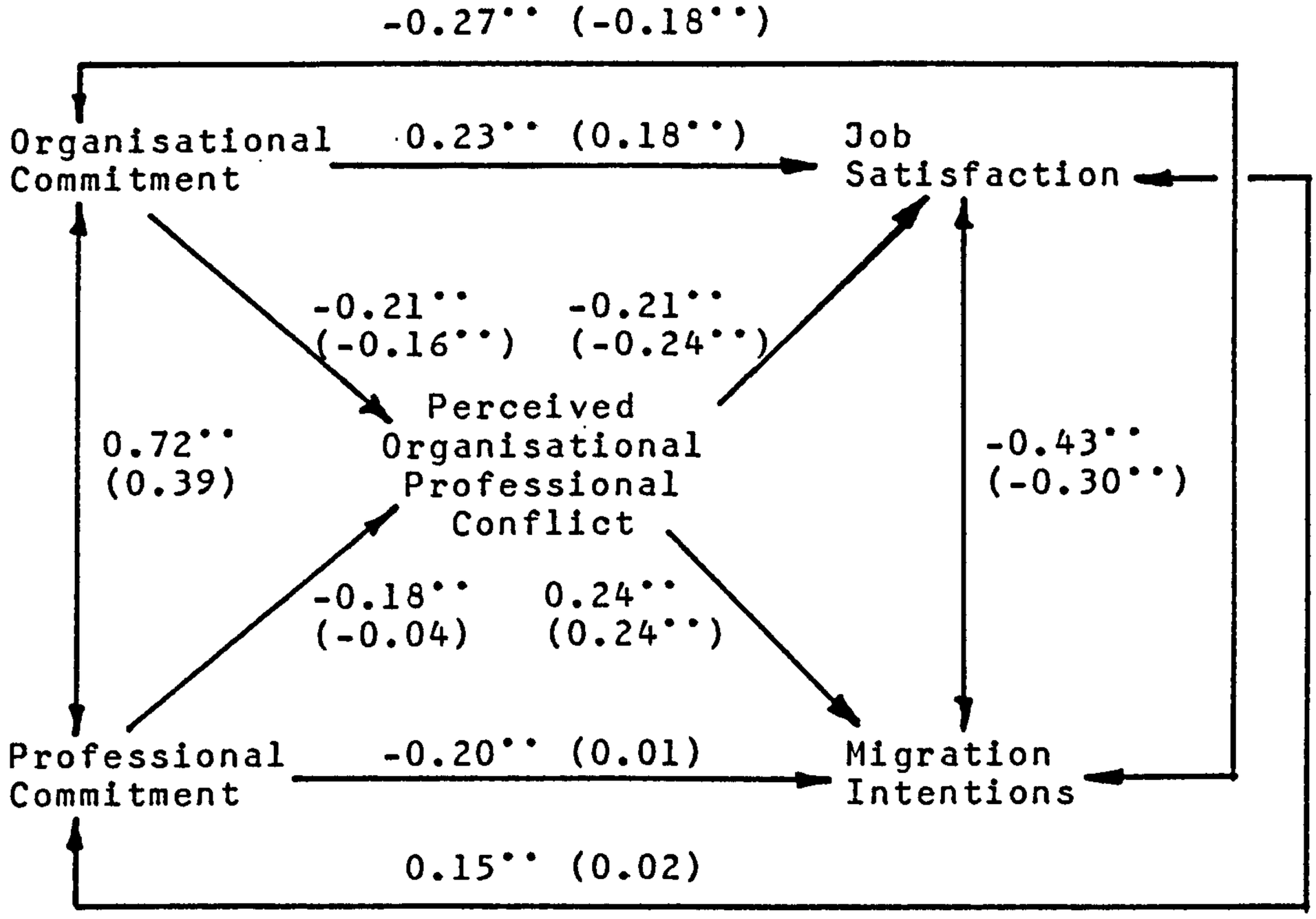
The existence of professional/organisational conflict was further questionned by Aranya and Ferris (1983). They investigated conflict in a cross-cultural context using a sample of Israeli (N=404) and American (N=469) certified public accountants working in local, regional and national

firms. The sample was stratified by organisational level and function. In general, the existence of organisational/ professional conflict was low. Furthermore, they found organisational and professional commitment were significantly and positively related with only organisational commitment significantly and negatively related to perceived conflict. Aranya and Ferris interpreted this as a direct contradiction of the traditional assumption of incompatibility of norms and values. Organisational/professional conflict, where it existed, was consistently related to accountants' migration intentions and job satisfaction. There was no systematic evidence of cultural effects. Figure 15 sets out their working model for exploring organisational conflict.

Hall (1967) has further questionned the validity of generalised professional/bureaucratic conflict. He believes there may be conflict between a professional department and the rest of the organisation and any severe conflict may be restricted to those individuals in contact with the remainder of the organisation. Individuals lower in the organisational hierarchy will experience a lesser degree of conflict.

Hall (1969), in an empirical investigation of his propositions, reported data from a variety of professionalised and professionalising occupations that indicated professionals in a large professional department may not necessarily face a more bureaucratised work setting. Conflict is, therefore, not inherent between professional and organisational norms. Inter-departmental conflict that existed was restricted to departmental head level and was not passed down the hierarchy. The internal departmental structures tended, in fact, to differ little from those of a professional organisation. Figure 16 summarises much of the foregoing details set out in the previous chapters.

Figure 15 Antecedents and Outcomes of the Organisational Professional Conflict
Source: Aranya and Ferris (1983:155)



••p≤.001

Figures in brackets refer to U.S. C.P.As

Figure 16 Difference between professional practice in different settings
Source Elliot (1972:100)

	Private Practice	Organisational	Common
Role	Complex	Concentrated on expertise	Career success leads to positions requiring other components
Practice Goals	Personal/Corporate Service	Diffuse	Personal/Corporate services requiring technological backing
Client	Own client Specific Responsibility	Organisation as client/Organisation's client/No client (Society) Shared Responsibility	
Career and Individual	Flat career pyramid. Achievement through practice	Graded within expertise or movement outside. Individual achievement	
Salient Reference Groups	Local community	Organisation	Professional community

Section Summary

Professionals are increasingly involved with highly structured organisations in a complex technological society. From an organisational perspective professionalisation and bureaucratisation are equally acceptable alternatives for accomplishing organisational missions and co-ordinating and performing complex tasks (Hall 1977, Mintzberg 1979, Scott 1966). They are based on different organisational principles (Scott 1966). They cannot be stressed equally by organisations and if they are it may lead to conflict and alienation (Hall 1977, Mintzberg 1979). However, depending on the nature of the goals pursued, professionals and administrators may be complementary to each other. Furthermore, conflict may only emerge if hierarchical authority and organisational discipline are stressed (Blau et al 1966, Blau and Scott 1963, Etzioni 1964).

The cosmopolitan-local construct has been discussed with particular respect to reference group behaviour. The construct is not a straightforward dichotomy but the number of dimensions isolated may be sensitive to different modes of analysis (Gouldner 1957, 1958, Flango and Brumbaugh 1974). The multi-dimensional nature of the construct has received support from Blau and Scott (1963). The importance of the organisational structure for the emergence of different orientations has been supported in a number of studies (Blau and Scott 1963, Glaser 1963, Goldberg 1976). Furthermore, reference group behaviour has also been affected by contextual factors such as career stage, the work environment and primary occupational role (Goldberg 1976). Greene (1978), although not specifically dealing with the cosmopolitan-local construct, has also added support to the optimal requirements of professional organisational commitment. Perceptions of professional and bureaucratic orientations have been found to vary according to hierarchical position (Sorensen and Thomas 1974).

Organisational commitment is related to decentralisation and functional dependence (Morris and Steers 1980). Formalisation has positive and negative consequences for alienation

among professionals. In highly professionalised groups it can cause role conflict. However, in a positive sense it can provide a Gestalt within which a professional can view his contribution to the organisation and the contribution the organisation can make to professional goals (Organ and Greene 1981). Furthermore, it can reduce role ambiguity (Morris and Steers 1980, Organ and Greene 1981). An optimal level of procedural specification may, therefore, be useful for the effective performance of professionals (Engel 1969, Organ and Greene 1981).

Bartol (1979) found that autonomy, professional commitment and ethics dimensions of professionalism were positively related to organisational commitment. Collegial maintenance of standards was negatively related. Furthermore, professionalism was not related to role ambiguity, role conflict or turnover. Thornton (1970) has indicated organisational and professional commitment are compatible in situations where the organisation reinforces the principles of professionalism.

However, professional/organisational conflict can arise in a number of different areas (Kornhauser 1962, Scott 1966). The underlying assumptions have been heavily criticised (Aranya and Ferris 1983, Hall 1967, Kerr, von Glinow and Schriesheim 1977). Empirical studies have indicated that in an administrative setting it may be intra-professionally based rather than occur from task incompatibilities. It will emerge as political manoeuvering for autonomy and control over resources (Green 1975). Traditional assumptions have been empirically questioned with a sample of Certified Accountants in a cross-cultural context (Aranya and Ferris 1983). Furthermore, perceived conflict may be inter-departmental rather than predominantly individual and restricted to senior professional members who are in direct contact with the rest of the organisation (Hall 1967).

The effects of structure on work roles will be investigated in the following section.

ORGANISATIONAL STRUCTURE AND WORK ROLES

The present study uses the concept of 'role to link different levels (Hunt 1972, Katz and Kahn 1966) of analysis. The concept is concerned with an individual's thoughts, perceptions and actions (Hunt 1972). At the conceptual level the definition noted by Hunt will be used. He defined the role to be,

> "...The collective expectations on an individual's behaviour resulting from the situational pressures (formal, informal, technical and external) and personality at a moment in time" (p.32).

Figure 17 sets out Hunt's conceptual model for an individual's role. However, it must be noted that at the operational level the concept loses its richness since 'expectation' is a nebulous idea which is not easily measurable. The operationalisng of the concept is only as good as the measuring instruments used and it must be assumed they are capable of capturing the collective expectancies of a role. In reality, it is an assumption that would probably leave much to be desired.

Organisations are, therefore, viewed as a series of interlocking roles that have a fluidity about them. The use of the term role by authors in the following review must be treated with caution. They may not be specifically dealing with the concept as set out above.

Organisational analysis can be classified into two distinct approaches in the literature, the macro and micro approaches (Moorhead 1981). The macro approach focuses on the determinants and dimensions of structure and the impact of structure on organisational effectiveness. The total organisation is the unit of analysis. Moorhead notes there has been a lack of concern in this approach with the effects of structure on individuals within the pursuit of effectiveness. The objective and subjective methods of measurement (cited earlier) characterise the methodology of the approach. The micro approach focuses on individuals, job characteristics and the work roles of employees. It is also concerned with differences among individuals and the way they

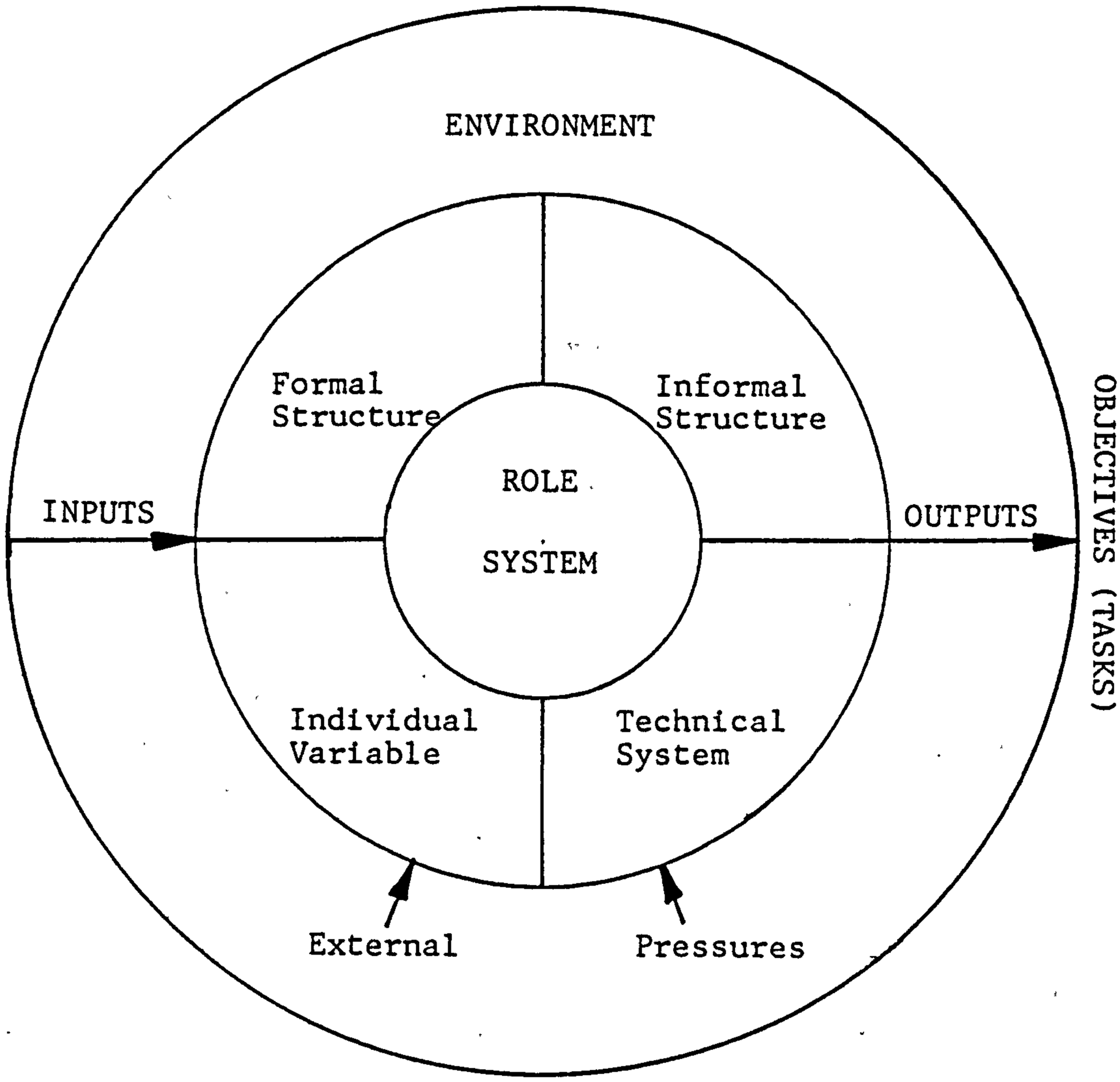


Figure 17 The model of an organisation
Source: Hunt (1972:11)

react to their jobs. Outcome variables include employee performance and satisfaction. Oldham (1976) is a proponent of this approach. The individual is the unit of analysis and investigations will usually use the concept of job scope. This often comprises 5 dimensions - Oldham (1976); these are variety, autonomy, task identity, feedback and task significance. Moorhead in reviewing a number of studies suggests the impact of structure on role variables will depend, to a certain extent, on the type of occupational groups studied.

Structural differences will occur across organisational units and according to hierarchical position (Hall 1977). This is further supported by Rousseau (1978) who, using Aston measures of structure, discovered that departmental, positional and individual characteristics predicted attitudes and behaviour in roles.[5] However, Rousseau concluded that individual characteristics were the best predictors. Furthermore, the evidence supported the conclusion that job characteristics (as measured by Oldham 1976) mediated the relationship between departmental characteristics and positional characteristics to attitudes and behaviour.

Moorhead (1981) suggested a preliminary model - Figure 18 for structure/role relationships. However, a preliminary test of the model, in a hospital setting, failed to support a number of the linkages. Moorhead suggested this was due to sample specific problems. Mintzberg (1973) has developed a contingency model for managerial roles - Figure 19 Mintzberg suggested the work of a manager, at a particular point in time, is affected by the four nested loops indicated in the diagram. These variables set out the role requirements and work characteristics for the individual. Mintzberg noted research evidence has found that the level and more specifically the function account for a great deal of variation in a manager's job. The role becomes more structured moving down the hierarchy and the individual is more concerned with 'real' time. There may also be considerable role specification.

Hillier (1979) provides further insights into the effects

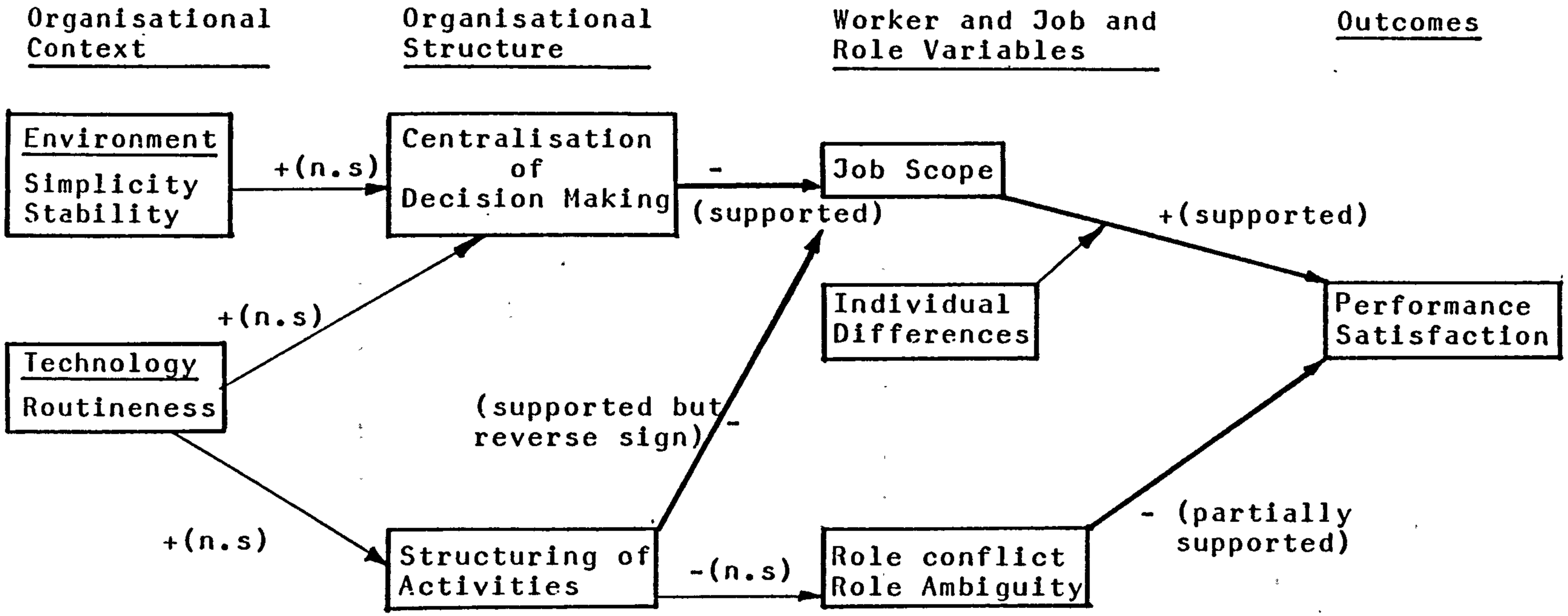


Figure 18 Integrative model of organisational analysis
Source: Moorhead (1981:197)

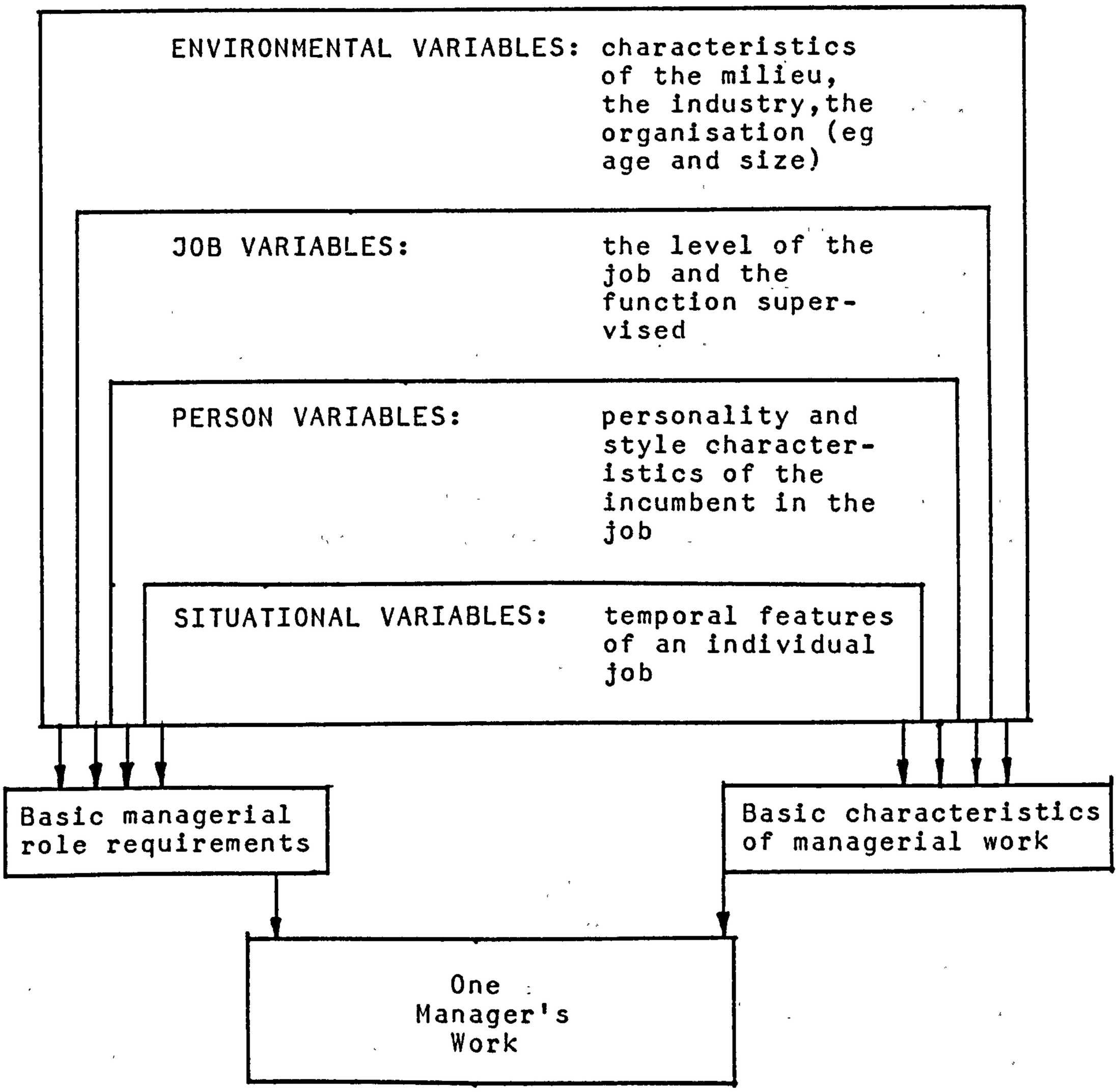


Figure 19 A contingency view of managerial work
Source: Mintzberg (1973:103)

of structure on role. First, using his typology of organic, mixed and hierarchical tree structures, an immediate difference emerged between public and private sectors. In the public sector structures were predominantly of the hierarchical tree form with an emphasis on communication rather than mobility of personnel. Hillier interprets this to mean greater role rigidity. The informal structure evolves to assist the working of the formal structure. In the private sector structures were either organic or mixed with a constant emphasis on informality and fluidity. This occureed regardless of organisational size. The informal organisation was the 'real' structure with the formal structure existing for other reasons. Mobility was emphasised and justified in terms of flexible adaption to the varying workloads induced from outside the organisation.

Second, Hillier in exploring work roles used the traditional professional model of (i) the architect undertook the job himself and (ii) his responsibility was personal. The data indicated immediate differences between public and private sectors. In the public sector there was a greater tendency for architects to move away from both components of the model. Career development involved directing others rather than doing the job. Senior architects also moved away from full and direct resonsibility for the job. However, this could occur at any stage of a career. Greater personal responsibility for a job was concentrated at the middle and lower ranks. Furthermore, architects felt their porfessional responsibility was limited by their own subordinate position in a public bureaucracy. This pattern was not repeated in the private sector to the same extent. Generally, senior architects remained closer to individual projects and retained a greater degree of responsibility for the job. The result was not simply a function of organisational size. However, limitations arose from superior-subordinate relations.

Based on the foregoing, Hillier reached a number of significant conclusions. The crucial factor which appeared important for organisational roles was the enclosure of the architectural organisation within another form of organisation.

Individual career patterns were not only affected by large size but more importantly by the relative autonomy of the Architectural organisation. This led Hillier to conclude that two entirely different organisational principles were involved in Architectural practice. In the private sector the direct personal relationship between superior and subordinate was the chief source of difficulty, conflict and satisfaction. Organisationally, the hierarchy had a limiting and ambiguous effect on professional responsibility, since senior and job architects were jointly responsible for projects. In the public sector the tendency was for Architectural responsibility to be located at the lower levels reflecting a move to directive roles in more senior positions. Therefore, the lower levels experienced less direction from senior architects with increased responsibility. However, accountability was not professional but administrative, and occurred through the organisational structure.

Section Summary

Organisational analysis has tended to proceed along two parallel courses. The macro level where the organisation is the unit of analysis and the micro level where the individual is the unit of analysis. However, there has been a general lack of research amalgamating both approaches (Moorhead 1981). Structural differences occur across organisational units and according to hierarchical position. This will have an impact on individual work roles (Hall 1977, Rousseau 1978). A number of models have been considered that may overcome these sharp distinctions (Mintzberg 1973, Moorhead 1981).

Hillier (1979) has shown there are distinctions between the public and private sectors in the structuring of Architectural practice. Private sector practices are predominantly organic or mixed structures whereas public sector practices are arranged in a hierarchical tree structure. The public and private sectors are also distinctive in the approximation of architects to the professional model suggested by Hillier. In the public sector, senior architects are more concerned with managerial functions whilst middle and lower ranking architects experience greater professional responsibility but with reduced

professional and increased administrative accountability. In the private sector, architects of all organisational ranks retain more involvement and professional responsibility for projects. However, demarcation of responsibility for projects between superior and subordinate is ambiguous and this has resulted in interpersonal conflict.

The individual working in an organisation receives inputs not only from immediate colleagues but also organisational influences from outside his immediate work environment. The concept of organisational climate is useful in providing a link between the organisation and the individual. Organisational climate is discussed in the following section.

ORGANISATIONAL CLIMATE

Organisational climate is an important concept for understanding the impact of organisational practices on human behaviour (Schneider 1975). As a concept it provides a conceptual linkage between analysis at the organisational and individual level (Payne and Mansfield 1977). However, the concept is not without its problems. First, there is a considerable body of literature and research on organisational climate (Blake and Mouton 1964, 1969, Davis 1968, Dewhirst 1971, Dieterly and Schneider 1974, Forehand and Gilmer 1964, Friedlander and Greenberg 1971, Friedlander and Magulies 1969, George and Bishop 1971, Golembiewski 1970, Golembiewski and Carrigan 1970, Golembiewski et al 1971, Guion 1973, Hall and Lawler 1969, Hand, Richards and Slocum 1973, Johannesson 1973, Kaczka and Kirk 1968, Lawler, Hall and Oldham 1974, Litwin and Stringer 1968, Likert 1967, Marrow, Bower and Seashore 1967, Meyer 1968, Pritchard and Karasick 1973, Reddin 1970, Schneider 1972, 1973, Schneider and Bartlett 1968, 1970, Schneider and Hall 1972, Sorcher and Danzig 1969, Taguiri and Litwin 1968).

Second, this body of research and literature on organisational climate, in its different guises, has produced a number of major reviews (Campbell et al 1970, Hellriegel and Slocum 1974, James and Jones 1974, Payne and Pugh 1975, Woodman and

King 1978). However, this in turn, rather than assisting in the understanding of the concept has perhaps added to the confusion. Campbell et al (1970) treat climate as a catch-all concept. Hellriegel and Slocum (1974) discuss the literature under headings describing usage as an independent, intervening and dependent variable. James and Jones (1974) divided the literature into; multiple measurement-organisational attribute, perceptual measurement-organisational attribute and perceptual measurement-individual attribute approaches. Payne and Pugh (1975) go for a different approach again. They divide the literature into relationships between; perceptual measures of climate and structure, objective measures of structure and perceptual measures of climate, objective measures of structure and objective measures of climate and finally, organisational climate and individual characteristics. Woodman and King (1978) only highlight the methodological and conceptual problems. The present study will isolate those important characteristics, in a potentially useful concept, for understanding the impact of the organisation on the individual.

Definitions of climate

Hellriegel and Slocum (1974) consider organisational climate,

> "...refers to a set of attributes which can be perceived about a particular organisation and/or its subsystems, and that may be induced from the way that the organisation and/or its subsystems deal with their members and environment" (p.289)

Schneider (1975), unlike Hellriegel and Slocum, considers climate to operate more at the individual level. He defines it in terms of perceptions,

> "...Climate perceptions are psychologically meaningful molar descriptions that people can agree characterise a system's practices and procedures. By its practices and procedures a system may create many climates. People perceive climates because the molar perceptions function as frames of reference for the attainment of some congruity between behaviour and the system's practices and procedures. However, if the climate is one which rewards and supports the display of

> individual differences, people in the same system will not behave similarly. Further, because satisfaction is a personal evaluation of a system's practices and procedures, people in the system will tend to agree less on their satisfaction than on their descriptions of the system's climate" (p.474-5).

Forehand and Gilmer (1964) define organisational climate as a

> "...set of characteristics that describe an organisation and that (a) distinguish the organisation from other organisations, (b) are relatively enduring over time, and (c) influence the behaviour of people in the organisation" (p.362).

Forehand and Gilmer, therefore, view climate in terms of those stimuli, constraints on freedom in choices of behaviour and the reward and punishment process that are presented to the individual. Within their framework for organisational climate they consider that organisational size, structure, the complexity of the system, leadership style and organisational goals are variables subsumed under the concept. As James and Jones (1974) commented,

> "...it is difficult to see how their description of organisational climate is other than a rather broad-spectrum approach to those organisational attributes which other authors (Hall, Haas and Johnson 1967; Pugh, Hickson, Hinings and Turner 1968) have referred to as components of situational variance or structure" (p.1097).

Campbell et al (1970) defined organisational climate as,

> "...a set of attributes specific to a particular organisation that may be induced from the way the organisation deals with its members and its environment. For the individual member within an organisation, climate takes the form of a set of attitudes and expectancies which describe the organisation in terms of both static characteristics (such as degree of autonomy) and behaviour-outcome and outcome-outcome contingencies" (p.390).

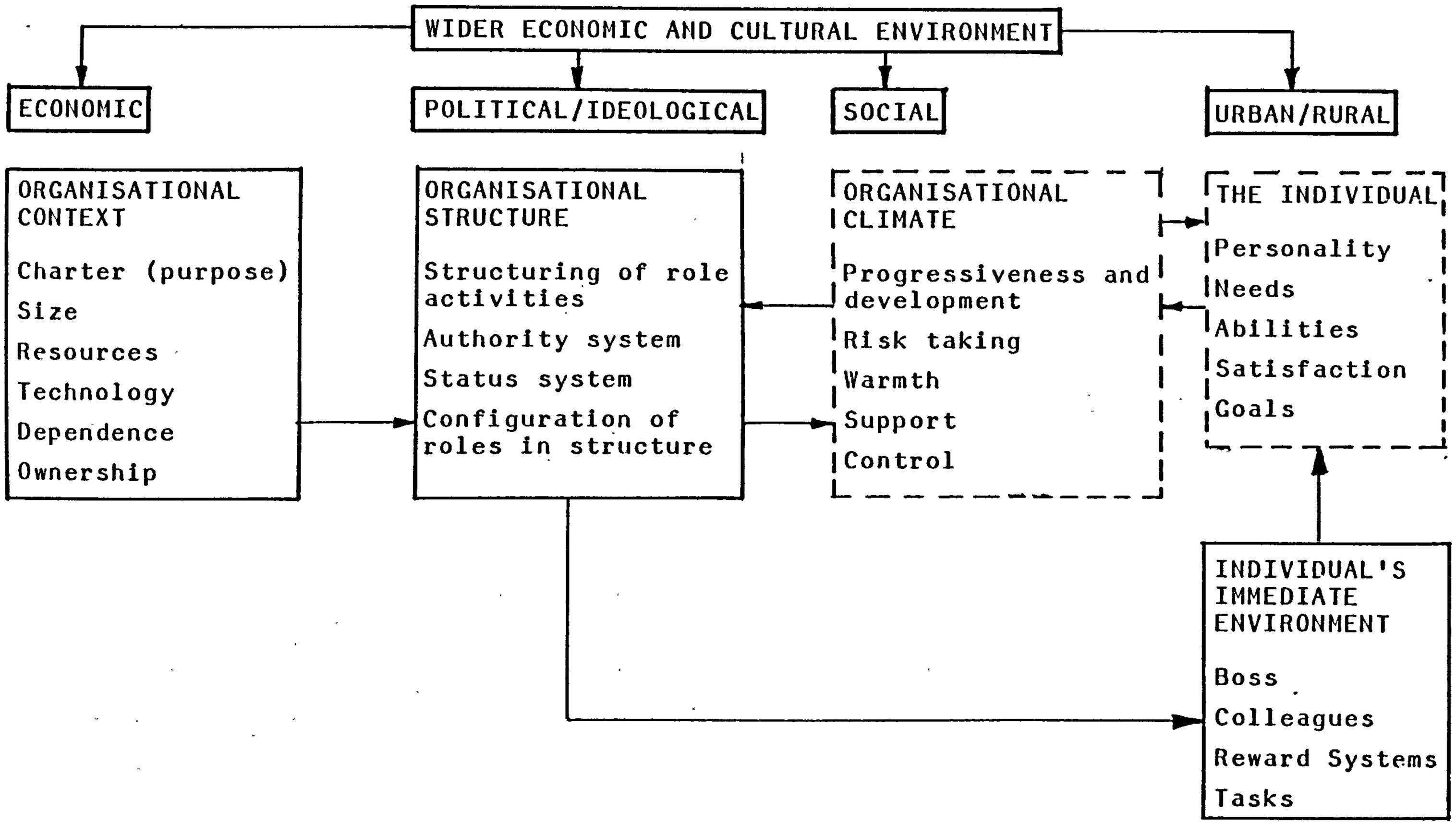
To Campbell et al (1970) organisational climate was identified as one of four general categories associated with organisational situation. The remaining three were (a) structural properties, (b) environmental characteristics, (c) formal role characteristics. Therefore, to Campbell et al, the

individual perceives the situation within which the organisation operates and this in turn will effect behaviour.

Payne and Pugh (1975) also adopt an organisational perspective. To them climate describes the characteristic behavioural process in a social system at one point in time. The processes are reflections of members' attitudes, beliefs and values which are part of the construct. Figure 20 sets out Payne and Pugh's interpretation of the relationship between organisational structure, context and climate.

It is these differences in interpretation that have led to a considerable degree of confusion over the concept (Guion 1973, James and Jones 1974). Perceptual measures of climate have had different associations with objective and subjective measures of structure (Payne and Pugh 1975). It has been conceptualised as an organisational attribute or an individual attribute (James and Jones 1974) and has been used as a dependent, intervening and independent variable (Hellriegel and Slocum 1974). Fineman (1975) has concentrated on individual job climate within an organisational context. However, a number of important points have emerged from the differing perspectives. Climate research is based on the assumptions that first, humans through the use of thought processes attempt to apprehend and create order in their environment. Second, order is apprehended or created in the environment in order to adapt behaviour in to the work environment (Schneider 1975). Climate is reality based and is capable of being shared (Schneider 1975, Woodman and King 1978). However, consensus about climate may be constrained by individual perceptions (Woodman and King 1978). Perceptual responses to climate are primarily descriptive rather than evaluative and there are potential behavioural consequences (Hellriegel and Slocum 1974, Schneider 1975, Woodman and King 1978). There is a permanence about organisational climates once they have evolved. Furthermore, they are capable of evolving in short time periods and can have significant effects on motivation, performance and job satisfaction. Tentatively, they can also affect seemingly stable personality traits (Forehand and Gilmer 1964, Litwin 1968).

Figure 20 Major influences on structure and climate
Source Payne and Pugh (1975:1127)



Fineman (1975) considers the work environment acts as a moderator variable in achievement related behaviour. High achievement oriented environments facilitate the performance of high nAch individuals in comparison to low achievement oriented environments. This is based on the assumption that the environment acts as an independent source of behavioural variance and operates additively with personality variables.

Findings on climate research

There is a considerable body of ambiguous research but organisational size has consistently related to perceptual measures of climate (Payne and Mansfield 1973, Payne and Pugh 1975) and objective measures of climate such as absenteeism, labour turnover and grievances (Payne and Pugh 1975). Furthermore, hierarchical position has been an important source of variance (Hellriegel and Slocum 1974, Mansfield and Payne 1977, Payne and Mansfield 1973, Payne and Pugh 1975).

Problems with climate

There are a number of methodological problems associated with climate measures. There is disagreement among researchers as to whether climate is an indirect or direct determinant or purely correlational predictor of behaviour (Woodman and King 1978). Climate is invariably measured in terms of perceptions and in this respect at the operational level there has been considerable overlap with perceptual measures of structure (James and Jones 1974). There is a lack of stability amongst perceptual measures of climate (Payne and Pugh 1975) and there are large variances in factor structures of measuring instruments making generalisation across organisations difficult (Woodman and King 1978). There has been an over-emphasis on people orientations with response categories measured in terms of nominal scales. As a consequence this raises problems of statistical analysis (Hellriegel and Slocum 1974), and may account for some of the low validity and reliability of scales across organisations (Woodman and King 1978). Furthermore, scales have usually been developed on middle and lower level

managers and generalisability in other organisations and at differing hierarchical levels is an assumption that should be tested (Hellriegel and Slocum 1974). In general, therefore, organisational climate research has suffered from an over-concern with measurement but little concern for conceptualisation (James and Jones 1974). This is especially important in two areas. First, a lack of systematic evidence on the relationship of perceptual measures of climate with objective measures such as age, sex, tenure and education level (Hellriegel and Slocum 1974). Second, there is considerable debate in the literature as to whether climate and job satisfaction scales measure the same thing. Hellriegel and Slocum (1974) consider they are different concepts but suffer from operational problems. Schneider (1975) suggests they are conceptually and empirically different since climate is concerned with perceptions of the external world whilst job satisfaction is an internal state. Payne and Pugh (1975) suggest that climate, along with personality and intellectual ability, probably moderate climate perceptions. The reality of climate research, at the operational level, is probably best summed up by Woodman and King (1975), when on reviewing the literature, they concluded that it is still unclear if perceived climate is a causal, a moderator variable or is the same concept as job satisfaction since research results were contradictory and easily lend themselves to subjective interpretation.

To assist in understanding this problematic area the present study will use Likert's (1967) distinction between causal, intervening and end-result variables. He notes,

"...The 'causal variables' are independent variables which determine the course of development within an organisation and the results achieved by the organisation. These causal variables include only those independent variables which can be altered or changed by the organisation and its managment. General business conditions, for example, although an independent variable, is not included amongst the causal list. Causal variables include the structure of the organisation and management's policies, decisions, business and leadership strategies, skills and behaviour.

The 'intervening variables' reflect the internal state and health of the organisation eg. the loyalties, attitudes, motivations, performance goals, and perceptions of all members and their collective capacity for effective interaction, communication and decision-making.

The 'end-result' variables are the dependent variables which reflect the achievements of the organisation, such as its productivity, costs, scrap-loss and earnings" (p.26).

Therefore, in line with Likert (1967) and Payne and Pugh (1975), the present study will maintain a conceptual distinction between structure and climate variables.

Section Summary

A considerable body of confusing research has accumulated an organisational climate. However, it is an important concept for understanding the impact of organisational practices on human behaviour (Schneider 1975). It provides a conceptual link between organisational and individual levels of analysis (Payne and Mansfield 1977). A number of different perspectives on organisational climate have been considered (Campbell et al 1970, Fineman 1975, Forehand and Gilmer 1964, Hellriegel and Slocum 1974, Payne and Pugh 1975, Schneider 1975). Conceptual and methodological problems have been highlighted (Hellriegel and Slocum 1974, James and Jones 1974, Payne and Pugh 1975, Woodman and King 1978). To assist in conceptualising organisational climate a distinction will be made between structure and climate variables (Likert 1967, Payne and Pugh 1975).

Chapter Notes

1. The present study uses the Hage and Aiken measure of formalisation. They define formalisation to be the use of rules in an organisation - Hage and Aiken (1967:79).

2. The present study uses the Hage and Aiken measure of centralisation. They define it to be how power is distributed among social positions - Hage and Aiken (1967:77). In their operationalisation of the constructs Hage and Aiken factor analysed Hall's (1963) measures of bureaucracy.

3. Blau and Scott's (1963) reclassifications are (i) Professionals - those having graduate training and choosing an outside reference group (ii) Reference group only - those workers oriented to outside reference groups but lacking graduate training (iii) Training only - those workers having graduate training but not choosing an outside reference group (iv) Bureaucrats - those workers without graduate training and not oriented to outside reference groups.

4. Bartol's (1979) scale of professionalism was a synthesis of Hall's (1969) and Kerr, von Glinow and Schriesheim's (1977) dimensions. Bartol's dimensions were (i) Autonomy (ii) Collegial maintenance of standards (iii) Ethics - avoidance of self-interest, emotional involvement with clients and the service ideal (iv) Professional commitment - dedication to work and career aspirations as a professional (v) Professional identification - use of profession and professionals as major referent.

5. Rousseau's (1978) variables were (i) job characteristics - measured by Oldham (1976) (ii) Structure measured in terms of department size, centralisation, formalisation and hierarchy (iii) Positional characteristics including shift, job title, tenure, positional tenure. Respondents were classified as supervisors or employees from job titles (iv) Attitudes and behaviour were measured in terms of job satisfaction, physical stress, psychological stress, innovation, propensity to leave and absenteeism. (v) Individual characteristics measured were sex, age, need for growth and need for role clarity.

CHAPTER 5

THE DIMENSIONS OF PERSONALITY

INTRODUCTION

Previous chapters have dealt with occupational and organisational levels of analysis. The present chapter is concerned with the individual level of analysis and represents the final element in the theoretical framework for the present study. The chapter focusses on achievement motivation theory and interpersonal behaviour. Achievement motivation is considered important because it has implications for entrepreneurial role behaviour and occupational striving. Two elements that may help to unravel the complex processes at work within Quantity Surveying. Interpersonal behaviour is encompassed within the theoretical schema because professional socialisation and task performance, for the quantity surveyor, are rooted in social interactions between client representatives, consultants and colleagues.

A number of terms require clarification prior to the discussion of theoretical issues.

Motivated behaviour is assumed to be intentional and voluntary and is goal directed. The individual holds expectancies that specific behaviours will lead to desired incentives. These incentives will probably have been formed through past learning experiences. The concept of motivation also implies that the individual expends energy. This enables the performance of a behaviour relevant to the situation the individual finds himself/herself in at that particular moment in time. Motivation is also assumed to be selective or directional and involves persistence, over time, to attain goals in the event of setbacks (Jung 1978:5).

A motive is a specific cause or reason behind a given behaviour (Jung 1978:4).

A need or drive is a theoretical construct to account for the outcomes or certain objective and subjective occurences. It is an invisible link between a stimulus and the resulting action (Murray 1937). Needs can be classified into two types, the biogenic or physiologically determined needs and learned needs. The former will often be referred to as primary needs and the latter as secondary needs (Wright et al 1970). The achievement motive is a learned need.

The concepts of motivation, motives and needs are controversial issues in much of the theorising on human behaviour (Hunt 1979, Jung 1978, Wright et al 1970).

ACHIEVEMENT MOTIVATION

Achievement motivation theory is the creation of Atkinson and McClelland (Miner 1980). The original work was begun in the late 1940s and early 1950s with the study of the effects of hunger and then experimentally induced motivation to achieve on the content of the Thematic Apperception Test. This culminated in the publication of 'The Achievement Motive' by McClelland, Atkinson, Clark and Lowell (1953). Work on the effects of achievement motivation at TAT was then extended to studies on the needs for affiliation, power, fear, sex and aggression in addition to the work on hunger and achievement motivation. This culminated in the publication of 'Motives' in Fantasy, Action and Society' (Atkinson-Ed-1958).

Major theoretical developments

McClelland views motives as learned and arranged in a hierarchy for influencing behaviour. They vary from individual to individual. During their development people associate positive and negative feelings with events that are happening to them and around them. Achievement situations may elicit feelings of pleasure for an individual and over time he/she will be characterised by strong achievement motivation. In this instance it will only require minimal achievement cues to activate expectations of pleasure and increase the likelihood of achievement striving. The high achievement oriented individual will have this particular motive close to the top of his/her hierarchy of motives (Miner 1980).

McClelland's contribution to achievement motivation research is probably best known for his work on n-Ach and economic progress (McClelland 1967) and developmental work on the need for power (McClelland 1970). These works will be discussed further in future sections.

Atkinson extended much of McClelland's work. The former considered individuals were characterised by a motive to achieve success and a motive to avoid failure (Atkinson 1965).

The motive to achieve success is a function of three factors,

- achievement motivation which is a relatively stable personality trait.
- two variables that reflect the immediate environment of the individual,
  - i) the expectation that performance on a task will be followed by success.
  - ii) the incentive value to the individual of success at a task.

The tendency to avoid failure is also a function of a motive, an expectancy and an incentive. The motive to avoid failure is conceived to be inhibitory and opposes and dampens the tendency to undertake achievement oriented tasks. It is consciously expressed as anxiety and is as important as the motive to achieve success in over all achievement striving. The individual, when engaging in an achievement oriented activity, experiences an approach avoidance conflict which is dependant on the relative strengths of the opposing motives (Atkinson 1965). Atkinson further extended the conceptualising of achievement striving to include the importance of future goals and cummulative achievement. Task performance is often viewed as a means to an end in itself. Furthermore, Atkinson postulated that achievement motivation does not occur in a vacuum; the individual is already motivated and active. It is the change in motivation that becomes the focal point in achievement striving (Miner 1980). In the initial development of the theory both McClelland and Atkinson had concentrated on tasks that were predominantly laboratory based. The addition of the concept of future goals, by Atkinson, enables achievement motivation theory to come out of the laboratory situation andhave a potential for explaining behaviour in real life situations. Atkinson (1974) considered that motivation influenced the level of performance on a specific task and cummulative achievement in different ways. Figure 21 sets out Atkinson's deliberations on extending achievement motivation theory beyond task specific activities.

A further elaboration on achievement motivation theory was provided by Weiner (Weiner 1972). Attribution analysis is

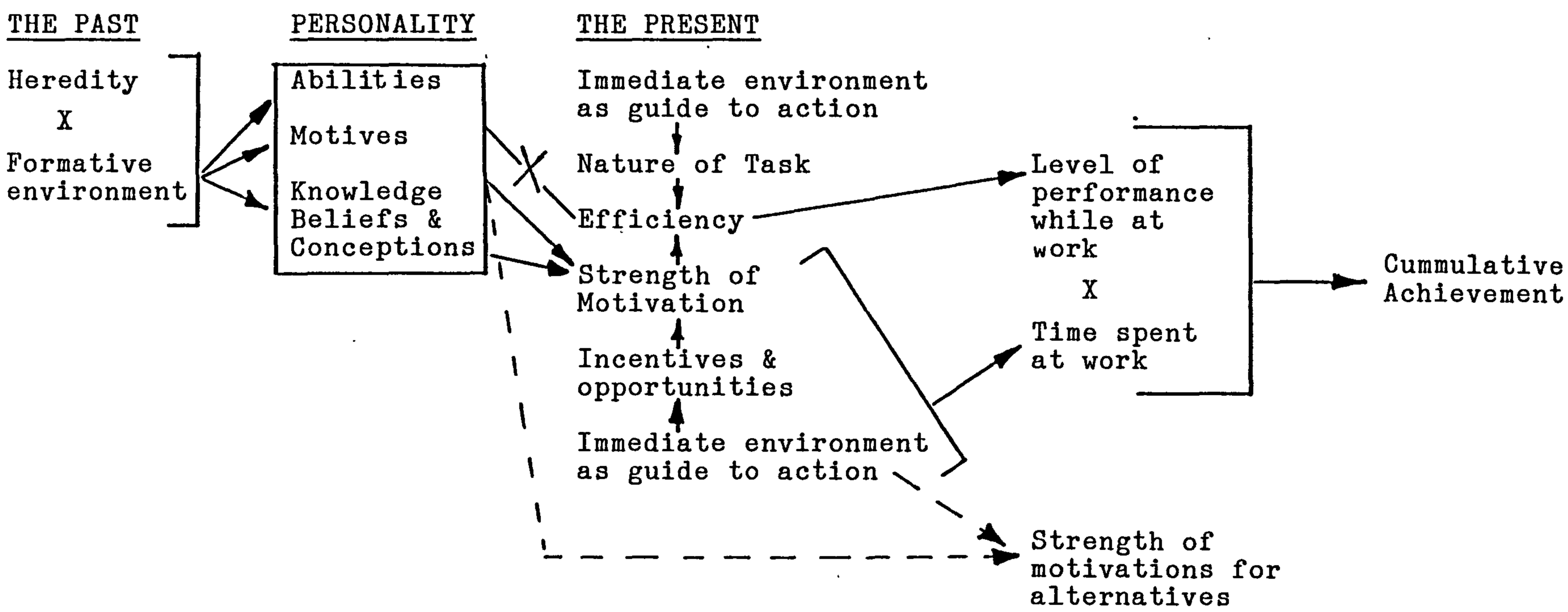


Figure 21 The dual role of motivation as a determinant of cummulative achievement
Source: Atkinson (1974:392)

concerned with imputing causality. An attributional analysis of achievement motivation leads to the following (Weiner 1973),

- high n-Ach individuals are more likely to approach achievement related activities than low n-Ach individuals because the former attribute success to themselves.
- high n-Ach individuals will persist longer at tasks, given failure, than low n-Ach individuals because the former are more likely to attribute failure to a lack of effort rather than a deficiency in ability.
- high n-Ach individuals will choose tasks of intermediate difficulty with greater frequency than low n-Ach individuals. High n-Ach people prefer this type of task because it is more likely to provide information about capabilities than would selection of tasks that are either too easy or too difficult.

Miner (1980) further elaborates on attributional analysis. He notes the theory deals with the ascription of success or failure to;

- ability, which is a stable characteristic and internal to the individual.
- level of effort, which is a variable factor and also internal to the individual.
- task difficulty, which is stable and given but is external to the individual.
- luck, which is unstable, variable and external to the individual.

The theory of achievement motivation, as originally conceptualised by McClelland, was a theory of male motivation. Its application to females has not resulted in the same success. The achievement goals of females may be more diverse and tend towards excellence in the area of social skills. Fear of success has also been found to be more prevalent in females (Miner 1980).

The importance of the situation

Motivation is determined by an interplay between an individual and his environment (Stringer 1966). The importance of the environment for providing achievement oriented cues has received extensive support (Atkinson 1957, McClelland 1967, Miner 1980, Stringer 1966, Weiner 1972,1973). Those environmental

factors found to be important in achievement striving are (Miner 1980, Stringer 1966),

- those emphasising personal responsibility for task accomplishment.
- those providing freedom to pursue goals by means of one's own choosing.
- those providing prompt and unbiased feedback of results of actions.
- those offering moderately risky situations (50 - 50 risk preferences).
- those where consistent rewards and recognition are provided for a job well done.
- those requiring a future orientation such as thinking ahead and planning.

The importance of a free choice situation has also been suggested by Weiner (1970). He noted that given a free choice situation, where an individual is able to select any available alternative, the high n-Ach individual will tend to initiate achievement oriented actions. Low n-Ach individuals will tend to avoid such activities. Furthermore, high n-Ach individuals are also likely to arrange their environment to increase the probability of success at achievement oriented activities.

Need for achievement and achievement values (v-Ach)

The literature on achievement oriented activity has taken two distinct paths. Achievement motivation theory, as developed by McClelland and Atkinson, operates at the unconscious level of personality (McClelland 1967). However, sociologists are more concerned with conscious measures of achievement striving and this has led to he concept of achievement values (Kahl 1965). Achievement values are verbalised desires for upward striving. They have been shown to be conceptually distinct from the personality trait - need for achievement (Pandey and Tewary 1979, Scanzoni 1967, Rosen 1956). Achievement values have been found to consist of five different components (Kahl 1965).

- activism or mastery over the environment
- trust
- independence of family
- occupational primacy or accomplishment
- planning for the future

Achievement values and need for achievement are both part of the achievement syndrome but they are different in correlates and also origin (Rosen 1956). Achievement values are probably acquired through cultural training of the child when complex verbal communication is possible. Achievement motivation has been shown to have its foundations in the parent-child interactions of early life. These interactions are likely to be external and unverbalised (Rosen 1956). Furthermore, Rosen has suggested that since they are analytically independant and have different origins v-Ach can be acquired independantly of n-Ach although empirically they often occur together. His research investigations, using measures of n-Ach and v-Ach, supported this contention (Rosen 1956).

Sources of need for achievement

In order to adequately describe the antecedents of achievement motivation it is necessary to distinguish between the results that have used the n-Ach construct and those that have used achievement values.

1. Family influences.

Early mastery training promotes high n-Ach provided it does not reflect generalised restrictiveness, authoritarianism or rejection. The high n-Ach individual is, therefore, likely to come from a warm, loving and supportive family environment with an emphasis on early self reliance for the welfare of the child (McClelland 1967).

There are many background variables, other than child rearing practices, that have been found to affect achievement motivation. The results are ambiguous and there is evidence of high order interactive effects. McClelland has suggested that first born children tend to have high n-Ach although cross cultural evidence presented by Rosen (1961) makes firm conclusions impossible. In general Rosen (1961) found that there was a curvilinear relationship between family size, social status and achievement motivation as measured by TAT (This held for a homogeneous white sample but not a heterogeneous ethnic sample). Rosen found high order effects between family size, ordinal position, socio-economic status and achievement motivation.[1]

However, he suggested that social class is consistently related to need for achievement. Those individuals from social classes 1, 2 and 3 were significantly higher in achievement orientation than those from classes 4 and 5. Furthermore, boys from small families tended to have higher n-Ach than those from larger families. However, Rosen added a cautionary note. Social class appeared to be the most influential variable followed by family size and then ordinal position but interactive effects made predictions difficult. In an earlier study, Rosen (1956), the relationship between socio-economic status and n-Ach was further supported with middle class boys having higher achievement motivation than those from the lower strata. Rosen, however, also investigated the effects of socio-economic status on v-Ach. A similar relationship was found; boys from middle class backgrounds tended to have higher v-Ach than those from the lower strata. Rosen found that each orientation was related to different kinds of behaviour affecting social mobility. Need for achievement was positively related to academic achievement whilst v-Ach was related to academic aspirations and not achievement motivation scores.

Turner (1970), taking up the importance of a middle class background, suggested that any relationship between achievement motivation and social class was not simply a function of the latter but more specifically a function of a middle class entrepreneurial background.[2] Turner classified father's occupation as entrepreneurial based on the following four elements,

- a high degree of autonomy or freedom from direct supervision from others.
- authority over at least two levels of subordinates.
- decision making obligations.
- co-ordinating resources, men and materials.

Furthermore, Turner also differentiated working class from middle class entrepreneurial backgrounds. The results using TAT, indicated that high n-Ach adolescents came from fathers with entrepreneurial roles. This result was stable regardless of whether boys came from working class or middle

class backgrounds.

Falbo (1981) criticised much of the work on achievement orientation and ordinal position for failing to adequately deal with the problem of first and only born children in the analysis of results. He maintained that previous research had tended to ignore either only children or combine them under a first born category. Due to these classification problems Falbo used the term birth category. Using a sample of undergraduate students (841 males and 944 females) and a multi-dimensional approach to the measurement of achievement motivation Falbo discovered a number of significant birth category effects. These were found with competitiveness and educational aspirations but not mastery, willingness to work or personal unconcern about the cost of achievement. Falbo interpreted these results in terms of the parent sibling process.[3] A word of caution is necessary concerning Falbo's work. He has proposed his results in terms of achievement motivation but has essentially used measures of v-Ach. In view of the differences highlighted between n-Ach and v-Ach, it is possible that Falbo has been investigating conscious rather than unconscious processes usually associated with studies that have measured achievement motivation by TAT.

2. Religion.

McClelland (1967) has attempted to link n-Ach with the Protestant Work Ethic. He has suggested those countries that are predominantly Protestant have experienced greater economic growth than those where the religion was predominantly Roman Catholic. He noted more traditional Catholics[4] appeared to have some of the values and attitudes that would be associated with lower n-Ach. However, he added this may not always be the case especially in the USA and Germany where Catholics have moved away from traditional values towards the 'achievement ethic'.

Figure 22 sets out those factors that have been discussed and their relationship with economic achievement.

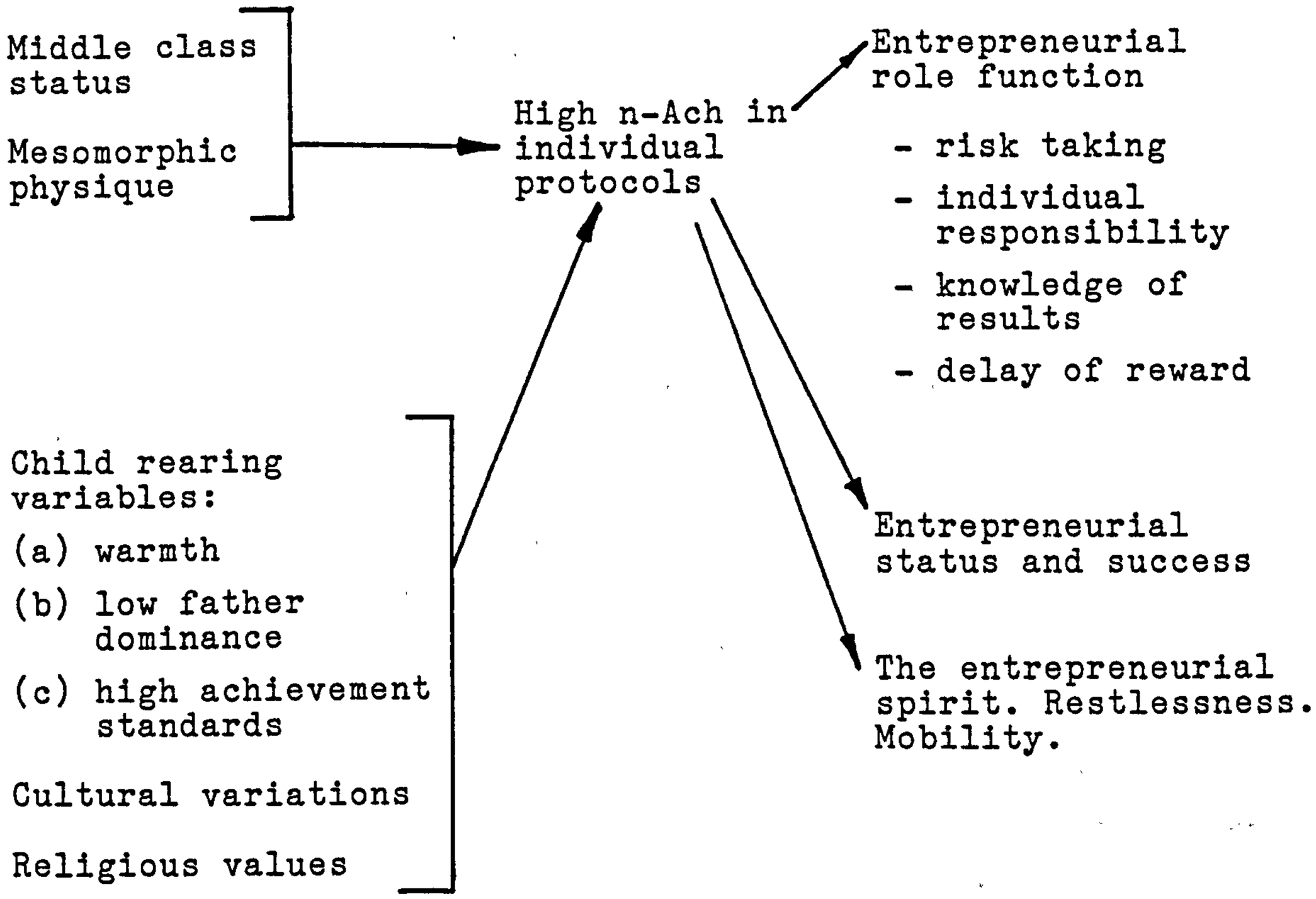


Figure 22 Flow chart showing interrelationships among the key variables related to entrepreneurial behaviour.
Source: Part adaptation from McClelland (1967)

Occupational selection, mobility and need for achievement

Occupational selection relates to the concept of career. The integrating link between achievement motivation theory and a career is the concept of future orientation (Raynor 1974). However, future orientation is necessary but not sufficient in occupational selection since the individual must take account of his starting position in life.

McClelland (1967) noted that liking for an occupation is a product of achievement motivation, the difficulty or prestige of the occupation and the individual's social status. He suggested that middle class boys with high n-Ach will have a preference for middle ranking occupations that are moderately difficult to achieve. Business occupations represent moderate risk choices for such individuals. McClelland reported that among those with high n-Ach in business occupations, there is a high proportion from middle class backgrounds and a correspondingly low proportion from the upper social strata.

Furthermore, McClelland noted those from lower income groups prefer business occupations because business offers the greatest opportunities for upward mobility. Conversely, those from higher income groups prefer the professions. Crockett (1962) supported McClelland's stance. His results indicated that strength of n-Ach, as measured by TAT, was related to upward mobility among sons of fathers in the two lower social groupings but not among sons of fathers in the two higher social groupings. In the latter category, strength of the affiliative motive was strongly related to upward mobility. Crockett concluded the strength of the achievement motive, as distinct from educational level attained, plays an important part in upward mobility. However, in the higher social prestige category higher education was virtually essential for upward mobility or stability.

Featherman (1972) disagreed with the previous two researchers. He considered that achievement motivation acted as an intervening variable. Using path analysis techniques he found little evidence to support the relationship between achievement orientation and status attainment. Featherman concluded that

social origins were not as important for adult achievement motivation as the more immediate social, situational factors. Of the latter it was education rather than early career attainment which transmitted the effects of social origins to experimentally measured motivational levels.

Characteristics of entrepreneurs

McClelland has been one of the few psychologists to have undertaken an extensive study of entrepreneurial behaviour. The foregoing section has highlighted the mechanisms that operate in occupational selection and mobility. The following section deals, in greater detail, with those characteristics that have been highlighted by McClelland as important for high n-Ach entrepreneurs.

Conceptually, McClelland (1967) differentiated between entrepreneurial status and entrepreneurial role behaviour. McClelland believed entrepreneurs or those occupying entrepreneurial status need not display entrepreneurial behaviour. Furthermore, it is possible for those who occupy other status to behave in an entrepreneurial manner. McClelland was primarily concerned, therefore, with entrepreneurial role behaviour as an analytical type and not with entrepreneurial status. These characteristics are (McClelland 1967),

1. Risk taking.

   The entrepreneurial role requires decision making under uncertainty. McClelland considered uncertainty ranges along a continuum, from a small amount at one end, which can easily be handled by traditional or specialised knowledge, to complete uncertainty, where there is no precedent or knowledge for deciding on actions and their outcomes. The business executive falls near the middle on the continuum. He requires some skill and some luck. In a moderately risky situation outcomes will depend on the businessman's skill. The high n-Ach individual prefers to operate in situations of moderate risk where he can exercise skill.

2. Energetic and/or novel instrumental activity.

Businessmen are often portrayed as hard workers who are prepared to work long hours in comparison to lower level executives. Furthermore, entrepreneurial roles require innovative behaviour. McClelland (1967) suggested that high n-Ach individuals work harder when it counts for personnel achievement and when personal effort will make a difference in the outcome. High n-Ach individuals also have a preference for working in innovative situations.

3. Individual responsibility.

The entrepreneurial role is generally assumed to require personal responsibility. Achievement satisfaction arises from initiating a successful action rather than from the public recognition that comes from it.

McClelland concluded,

> "....If we are correct in our belief that behaving in an entrepreneurial way is practically an alternative way of saying that a person has high n-Ach then it is true that the individual must retain some individual freedom and responsibility for generating and choosing among courses of action if he is to get any achievement satisfaction, but it is not true that he must therefore work for himself rather than some group enterprise. Individual responsibility for action and working for oneself must not be confused, although they often go together. A man gets achievement satisfaction from having contributed to the success of a group enterprise, so long as it is he who made some of the decisions contributing to a successful outcome and he therefore has some way of telling how well he has done" (McClelland 1967:230).

4. Knowledge of results of actions.

The entrepreneur will have concrete knowledge of the correctness of his decisions through profit earned or goods sold. In summarising research evidence. McClelland (1967) noted the high n-Ach individual prefers direct, task feedback and working with experts rather than with friends.

5. Long range planning and organisational abilities.

High n-Ach individuals are more concerned with future orientations by the very nature of entrepreneurial activity. McClelland (1967) noted that there was some confusion

in the literature as to whether the co-ordinating function is part of the entrepreneurial or the managerial role. Furthermore, there was no direct research evidence to indicate subjects with high n-Ach have superior organisational abilities. Figure 23 sets out the characteristics of entrepreneurial behaviour and its possible determinants.

McClelland has always maintained that achievement motivation theory is applicable to entrepreneurial and not to professional behaviour. He indicated,

> "....While it is true that professionals must at times behave in entrepreneurial ways, they probably need do so less than a business entrepreneur. That is, by definition, their job requires primarily application of specialised knowledge to problems that fall within their province - whether medical, legal, educational or theological. They should be most satisfied when they are able to solve a problem with the knowledge they have systematically acquired or memorised. The business-man.... is more apt to be involved in new, risky or challenging problem situations in which there are many unknowns and he must improvise new solutions rather than apply existing specialised knowledge. Business and the professions overlap in what they require of a man, but business should require more of the behaviour found to be characteristic of people high in n-Ach so that average differences in n-Ach levels should not be entirely obliterated" (McClelland 1967:261).

McClelland reported research evidence, from a small sample (N = 31), indicating that for matched pairs of professionals and managers, the managers scored signficantly higher in n-Ach than professionals ($p \leq .025$). Similar but higher results were also obtained from a group of middle level managers from diverse organisational types. In terms of n-Ach and management, McClelland (1967) found that those managers employed in marketing and sales had significantly higher n-Ach levels than managers in finance ($p \leq .02$), engineering and personnel (Total N = 78). Furthermore, on reviewing research evidence concerning n-Ach and managerial success, the findings emphasised the theory does not require that high n-Ach will lead to greater success in all types of managerial or sales jobs, under all conditions, in all types of organisations. It is only when the job presents

POSSIBLE DETERMINANTS	CHARACTERISTICS OF ENTREPRENEURS
n-Ach, optimism (other value attitudes) →	1. Entrepreneurial role behaviour * — moderate risk taking as a function of skill, not chance. Decisiveness. * — energetic and/or novel instrumental activity. * — individual responsibility. * — knowledge of results of decisions. Money as a measure of results. * — anticipation of future possibilities. — organisational skills
Entrepreneurial status and/or success →	2. Interest in entrepreneurial occupations as a function of their prestige and "riskiness".

* Derivable from the theory of n-Ach

Figure 23 Possible determinants of Entrepreneurial Characteristics
Source: McClelland (1967)

some challenge or risk to which the person can respond that n-Ach will stimulate success. In other research reviewed by McClelland (1967), he reported that in a matched sample of middle managers there was not significant differences in n-Ach between those working in public or private sectors. However, he did find cultural differences. The findings led McClelland to conclude that there was nothing intrinsic to public employment which would universally lower n-Ach or tend to select those with lower n-Ach.

Interestingly, Lynn (1969), although developing and using a questionnaire measure of n-Ach, discovered his results tended to contradict McClelland's stance on professionals. Lynn used a sample of entrepreneurs (N = 40), university professors (N = 28), senior managers (N = 48), lower level managers (N = 258) and students as a control group. Results indicated that entrepreneurs differed significantly from managers in n-Ach ($p \leq .05$). Furthermore, the order of scoring from highest to lowest was entrepreneurs, professors, senior managers and lower managers. Lynn suggested the result for professors contradicated McClelland's view that academic life was unattractive to high n-Ach individuals. This was essentially due to the lack of feedback on the results of academic work. Lynn argued, however, that the academic receives feedback via publications and their reception by the academic fraternity. The work of Lynn highlights one of the most significant problems facing n-Ach research, namely, the measurement and operationalisation of the construct.

Measurement of need for achievement

Measurement of the construct has produced heavy criticism. McClelland has maintained that since the construct operates at the unconscious level it can only be measured by the TAT. However, the TAT has been criticised for low reliability and has shown low correlations with quesionnaire measures of n-Ach (Fineman 1975a, 1977, Miner 1980). In addition, quesionnaire measures of n-Ach have also shown low inter-correlations and have indicated a multi-dimensional factor structure (Mitchell 1961, Ray 1980, South 1974, Weinstein 1969). This has led to he following conclusions: First, factor

analysis has clearly shown that several n-Ach measures are not measuring the same thing and are, therefore, not interchangeable (Weinstein 1969). Second, the achievement motivation construct is not a unitary construct and to view it as such would lead to methodological confusion, conflicting results and conceptual stagnation (Mitchell 1961).

The preceding comments raise important issues for n-Ach research. First, achievement motivation may be a richer construct than originally thought or it may suffer from conceptual ambiguity and operational deficiencies or it may be so general within social classes that it is unable to differentiate effectively between individuals. It can only differentiate between classes. Second, the issue of unconscious versus conscious measurement of the construct is a significant stumbling block. McClelland (1967) has conceptualised the construct as operating at the unconscious level and maintains that TAT protocols are the only effective means of measurement. The TAT is certainly a projective measuring device but it may be questionable whether it can be labelled an unconscious measuring instrument. Furthermore, the TAT is a fantasy based measure. An individual may show a high need for achievement, in fantasy, but it is debatable if it is always transferred into concrete behaviour. Conscious measures have already been alluded to in a previous section when v-Ach was discussed. It is possible that conscious measures of n-Ach are, in fact, v-Ach measures in disguise and produce a totally different set of findings than if TAT measures were used. This issue is of some importance for the present study. Fineman's (1975a) questionnaire measure of n-Ach is used as one of the measuring instruments. He has reviewed a considerable body of research evidence on n-Ach measures (Fineman 1975a, 1977) and has constructed a questionnaire measure that taps an individuals idealised image of his preferred boss and organisation. It can be suggested, therefore, that it is a questionnaire measure that is attempting to tap a projective element within its format. It may well be an improvement over other questionnaire measures of n-Ach.

Criticisms of achievement motivation theory

Achievement motivation theory is one of a number of theories that attempt to explain certain types of behaviour. In this instance the theory can be criticised without specific reference to the motive need for achievement. Mohr (1982) has indicated that motivation is not sufficient for behaviour and that resources are also necessary. He suggested motivation may be restrained by external or internal mechanisms. In the latter instance thought processes and beliefs may prevent motivations from being translated into behaviour. Therefore, he argued, since motivation can exist without behaviour the two are distinguishable. He continued,

> "....There is substantial doubt, however, that the theoretical role that tends to be accorded to motivations can possibly be a legitimate one. In truth, a weakness is connected with motivations as an element of theory, one that will be seen to relate directly to non-constructive instability due to interaction" (p.71)

From a different perspective he added,

> "....The conclusion on the central issue will be that motivations are on very shaky ground indeed as elements of theory in social research. There is, in fact, an even stronger position - namely, that motives may be excluded pre-emptorily and categorically because their use as explanatory precursors of behaviour is tautological. This view is based primarily on the idea that it is behaviour that proves motives, not direct motives themselves" (p.71)

McClelland (1967), dealing specifically with achievement motivation theory, takes a contrary view. He indicates,

> "....actual motivation cannot be considered a safe index of the need to achieve any more than eating can be considered a safe measure of the strength of the hunger drive. In fact actual achievement is controlled by many more forces than eating - desires for social approval, power or knowledge - to say nothing of ability factors, so that it is far less a reliable index of the need to achieve than eating is hunger" (p.39)

Mohr (1982) continued, at the more specific level,

> "....a specified motive may be a cause, but only in the individual case and not in the general, theoretical sense, at least not for the vast majority of behaviours. No specific set of motives is a necessary condition for the performance of a behaviour. Impact parameters

(such as regression coefficients) relating the motives to the behaviour must be expected, in principle, to vary in magnitude from one application or population or time period to the next, and no lawlike statement can be a true law or theory if, even with perfect measurement, its parameters vary without stable explanation from one context to another. The fact that motives are often used as theoretical precursors, even implicitly, has the significance for research that is emphasised in the present treatise - namely, unmanageable instability. Moreover, the fundamental assumption, the essence of the reason that motivation should generally not be used if durable theory is the object, signifies that the source of the instability is again interaction. In ordinary language, generalisation is defeated by the high probability that the impact of any motive on behaviour is indeed infinitely contextual; it depends on the essential array of other motives and environmental conditions that may bear on the same behaviour" (p.85)

Jung (1978) was critical of achievement motivation, in the particular, rather than at the more general level of Mohr. Jung criticised achievement motivation theory on a number of counts. First, the theory recognises that achievement is an intrinsic motive and is defined, in the laboratory setting, in terms of perceived or expected task difficulty. It fails to take account of real life situations where extrinsic motives will also play a contributory part. Jung concluded there is an artificality about the theory. Second, the theory only deals with individuals who are competing against internalised standards or norms and fails to take account of direct interpersonal competition. The latter type of competition, Jung felt, is a common place activity in all endeavours. Third, the theory is essentially a theory of male achievement striving and may only have limited application to females. Furthermore, the laboratory tasks, from which the theory was developed, were likely to be more suitable to males in American society. To paraphrase Jung, the theory may be culture and sex specific.

Miner (1980) is more generous than Jung in suggesting both positive and negative outcomes from the theory. First the incidence of multiple contributors has tended to pull the theoretical impetus in differing directions. As a consequence, there has been a lack of consistent findings.

He does add that the theory has found support in predicting success in establishing and developing small business and in extensions into macro economics. However, Miner believes other factors and motives are involved in the latter. He notes low levels of the affiliation motive have consistently been found to be precursors of economic growth; power motivation appears important in older industrialised countries; furthermore, Miner indicates that McClelland has found educational level operates independantly of achievement motivation yet contributes significantly to economic growth. Miner's second conclusion is that achievement motivation theory provides useful insights into the behaviour of certain individuals in the business world.

Achievement motivation theory, in its current form, tends to be viewed not in isolation, but as part of a trichotomy of needs that are intimately connected. The following sections will deal, in outline form, with the other two partners.

The need for power (n-Pow)

Power is defined as ".... the capacity to affect another's behaviour. ....Influence is the effect" (Hunt 1979:41).

Power motivation is concerned with interpersonal relations. High n-Ach does not equip an individual with the capacity to deal with and effectively manage human relationships (McClelland 1970). McClelland (1970) suggested two types of power, each having different consequences. The first he called socialised power and is concerned with the impact of power for the sake of others. It emphasises the use of power not for self interest but for the sake of the common good (Miner 1980). Socialised power does not and cannot express itself through win-lose situations but is characterised by the exercise of subtle influence to achieve group goals. Those individuals who are influenced feel they are origins rather than pawns to be manipulated (McClelland 1970).

Personalised power is concerned with personal dominance

and is viewed by McClelland as primitive power because strategies used by the individual were learned early in life. Long before the individual, through socialisation, was taught the use of subtle influence tactics (McClelland 1970). Personalised power is concerned with dominance-submission and people are treated as pawns rather than as origins of action (McClelland 1970, Miner 1980).

McClelland has postulated there is a hierarchy of growth in the need for power and the individual must experience one stage before proceeding to the next. He has suggested four stages in the development of power orientation (Miner 1980),

Stage 1 - the power motive involves deriving strength from others.

Stage 2 - the source of strength shifts from others to the self and feelings of power are derived from oneself.

Stage 3 - power motivation becomes concerned with impact on others and includes dominance and competition with others for mastery.

Stage 4 - power motivation shifts from essentially personalised power to socialised power and influencing others for the common good.

McClelland (1970) has suggested a leader has to maintain a subtle balance between social and personalised power. He must maintain socialised power in order to motivate but exercise personalised power in order to initiate.

Need for power has normally been measured by TAT protocols or other fantasy based measures (Winter 1970). Those who have high n-Pow, during their formative years, feel a 'sense of power' rather than inferiority. They are predominantly eldest or only sons from the upper middle classes. Early family life, for the high n-Pow individuals, tended to be described as more unified, with parents concerned about their performance and children more concerned with satisfying their parents wishes. However, as a cautionary note Winter added the recalls may, in fact, reflect a lack of power as a child and the individual is attempting to compensate for this during recall.

Miner (1980) has criticised McClelland's work on the power motive on the grounds that the theory may have moved outside its domain. He concluded that as a theory it is not as strongly grounded as achievement motivation theory. Furthermore, the criticisms and debate surrounding conscious and unconscious levels of operation for the achievement motive are equally as pertinent with n-Pow.

Need for affiliation (n-Aff)

Boyatzis (1973) has suggested a theory of affiliation motivation after reviewing a considerable body of sometimes confusing literature.

Boyatzis believed a concern with affiliation can manifest itself in two ways: approach or avoidance. The former is concerned with the establishment of 'love' relationships whilst the latter is concerned with a fear of rejection and being left alone. An individual with high approach concerns will;

i) Be relaxed and open in his behaviour with others.
ii) Make opportunities to relate to others without actively pursuing others.
iii) Have a genuine interest in others.

Boyatzis noted that an individual with high avoidance concerns will;

i) Seek the approval of others.
ii) Increase his/her importance to others by attempting to care for and help others.
iii) Ensure a relationship and a sense of other's being concerned for him/her by seeking out others to care for and help him/her.
iv) Evaluate him/herself by comparison with others.
v) Build and reinforce a sense of self worth by seeking to be with others who are perceived as being similar.

In reviewing the literature Boyatzis (1973) concluded the avoidance concern resembled the concept of need for affiliation. Once the need has been satisfied the individual will feel a sense of security. This will allow other motives to emerge or to develop a continuing relationship in an approach manner. Furthermore, avoidance affiliation tends to arouse

anxiety in a relationship and make others feel uncomfortable. Boyatzis noted individuals high in n-Aff may have predominantly avoidance concerns whilst those scoring moderately on the construct may have a combination of approach and avoidance. In the approach affiliation mode the attainment of a warm, close relationship will stimulate an individual to continue the relationship. As a consequence interpersonal sensitivity is increased. Boyatzis contended that it is the approach concern of the affiliative motive that enables individuals to be effective managers. The approach concern of one individual would satisfy the avoidance concerns of another and assist in the latter's development of approach concerns.

There is one drawback with Boyatzis' theory, he admitted that a methodology for measuring the new perspective has not been developed.

Section summary

Achievement motivation theory is the creation of Atkinson and McClelland (McClelland et al 1953, Atkinson (ed) 1958). Individuals learn to associate positive and negative feelings with events and over time achievement situations arouse feelings of pleasure (Miner 1980).

Atkinson extended McClelland's work. He conceptualised individuals as having a motive to achieve success and a motive to avoid failure (Atkinson 1965). Each is a function of a motive, an expectancy and an incentive. Both motives are equally important in achievement striving. The individual, in an achievement situation, experiences an approach-avoidance conflict due to the opposing nature of the motives. The relative strengths of each of the motives will determine whether the individual will undertake achievement activities. Atkinson further elaborated his work on the achievement motive to include the concept of future goals and cummulative achievement (Atkinson 1974, Miner 1980). The attribution of causality to achievement striving has also been a significant theoretical development. Success or failure can be ascribed to ability, effort, task difficulty and luck (Miner 1980,

Weiner 1972, 1973).

Situational cues are important in determining an individual's motivation (Atkinson 1957, McClelland 1967, Miner 1980, Stringer 1966, Weiner 1972, 1973). Environmental factors that are important in achievement striving are the opportunity for personal responsibility, freedom of choice, unbiased feedback of results, moderate risk situations, consistent rewards and a future orientation.

The investigation of the achievement motivation syndrome has proceeded on two levels, the unconscious and the conscious. The unconscious level is associated with need for achievement (n-Ach) (McClelland and Atkinson's contributions). The conscious level is concerned with verbalised achievement goals (v-Ach) (Kahl 1965). They are conceptually distinct and have different correlates and origins (Pandey and Tewary 1979, Scanzoni 1967, Rosen 1956).

A number of variables have been shown to be important for the development of n-Ach. The most important are child rearing practices, religion, family variables such as size, social status, birth order and an entrepreneurial background (Falbo 1981, McClelland 1967, Rosen 1956, 1961, Turner 1970).

Need for achievement, operating through a future orientation, has an influence on an individual's career, occupational selection and mobility (Crockett 1962, McClelland 1967, Raynor 1974). Middle class boys with high n-Ach have been empirically shown to have a preference for business occupations. However, Featherman (1972) has questioned the importance of social status as an influence on the relationship between need for achievement and occupational mobility. He believed the more influential variable is education.

Entrepreneurial role behaviour and n-Ach have been empirically investigated (McClelland 1967). High n-Ach individuals are likely to be found in entrepreneurial roles because they offer a potential for risk taking, innovation, individual responsibility, feedback and long range planning. McClelland has maintained achievement motivation theory is more applicable to entrepreneurs than professionals. However,

Lynn (1969) presented results, at least for university professors, that question this stance.

Need for achievement has suffered from considerable measurement problems especially in terms of the reliability of projective tests, low inter-measure correlations and multidimensional factor structures (Fineman 1975a, 1977, Miner 1980, Mitchell 1966, Ray 1980, South 1974, Weinstein 1969). These raise serious questions for n-Ach research.

Apart from criticisms attributable to operationalisation of the construct the theory has also received considerable criticism. At a general level the relationship between motivation and human behaviour may be of little theoretical use due to instability through interaction (Mohr 1982). Achievement motivation theory has also been criticised first, for failing to be realistic in terms of the interaction between intrinsic and extrinsic motivation, adding credence to Mohr's thesis. Second, it may be culture and sex specific (Jung 1978). Furthermore, it has lacked a body of consistent findings due to multiple contributors. It has had some predictive success in small businesses but has suffered from confounding effects at a macro economic level (Miner 1980).

McClelland conceptualised need for achievement as one of a trichotomy of needs, the other two being need for power (McClelland 1967, Miner 1980, Winter 1970) and need for affiliation (Boyatzis 1973). Needs for affiliation and power are interpersonal in nature. Their importance will be further elaborated in the next section dealing with interpersonal orientation although, as will become evident during the discussion, there is considerable conceptual overlap between these needs and certain perspectives on interpersonal behaviour.

THE INTERPERSONAL DIMENSION OF PERSONALITY

Behaviour that is related overtly, consciously, ethically or symbolically to another human being can be considered interpersonal (Leary 1957). Furthermore, it can be assumed

that,

> "....the essence of human happiness and despair, success and failure, centres in the manner in which the person consistently sees, symbolises and communicates with others" (Leary and Coffey 1955:111).

Interpersonal behaviour can, therefore, be considered one of the most important dimensions of personality since it is crucial to the survival of the human being. For effective survival it is essential the social role and social adjustment of an individual comprise the most important activity of human endeavour. This fact is important throughout life since survival will depend on the adequacy of interpersonal relations (Leary 1957).

Interpersonal behaviour

A number of different systems have been developed for investigating interpersonal behaviour (Argyle 1967, 1969, 1981, Foa 1961, Soloman 1981). There is a considerable body of evidence to indicate interpersonal behaviour can be described in terms of a circular ordering of traits or circumplex (Conte and Plutchick 1981, Foa 1961, Lorr and McNair 1963, Lyons et al 1980). The present study uses the circumplex for conceptualising interpersonal behaviour. Furthermore, within the bounds of a circumplex model there is also growing evidence, from factor analytic studies, that suggests interpersonal behaviour can be summarised under a number of basic empirical dimensions. These have variously been named as Dominance-submission and affiliation-hostility (Foa 1961); Aggressive dominance, Affiliation sociability and Autonomy (Golding and Knudson 1975), Control, Dependance-Affiliation and Detachment (Lorr and McNair 1963), Autocratic dominance, Affiliation and Inferiority feelings (Briar and Bieri 1963, Truckenmiller and Schaie 1979); Dominance-submissiveness, Friendliness-hostility and Task orientedness-expressivity (Bayles 1970, Soloman 1981). The foregoing dimensions have been established empirically, however, the Interpersonal Personality System (Leary 1957) has established trigonometrically two orthoganal dimensions Dominance-submissiveness and Love-hate. In a personal communication with Gynther et al (1962) Leary suggested the interpersonal domain could

be analysed with the addition of two further dimensions - responsibility and competitiveness. Figure 24 sets out one example of a circumplex ordering of interpersonal behaviour dimensions. The following discussion explores in greater detail the Interpersonal Personality System of Leary since it offers a useful approach for the present study.

The Interpersonal Personality System

This system was developed by Leary and his colleagues at the Kaiser Foundation for psychiatric illness. The System attempts to provide (Laforge and Suczek 1955),

- a system for classifying and ordering varieties of interpersonal behaviour
- a notational system that permits levels of interpersonal behaviour to be investigated
- a means of systematically relating different levels of interpersonal behaviour to each other to allow an objective description of personality, organisation and change.

The theoretical background to the System uses the work of Harry Stack Sullivan (Leary 1957). According to Leary, Sullivan views the motivating force behind personality to be the reduction or avoidance of anxiety. Anxiety is conceptualised as an interpersonal phenomenon and involves a loss in self esteem. The roots lie in a fear of rejection or debasement of the individual by self or others. Sullivan considers the human being is rarely free from such interpersonal tension since his/her actions and thoughts are usually related to his/her estimation by others.

Leary noted, however, that Sullivan provides an approach but not a methodology for investigating interpersonal behaviour.

Baumrind (1960), a psychiatrist, has criticised the Interpersonal System for making anxiety an integral part of all interpersonal experience. She concluded that it robs the System of explanatory and predictive meaning. In her view normal behaviour is reduced to no more than an appropriate

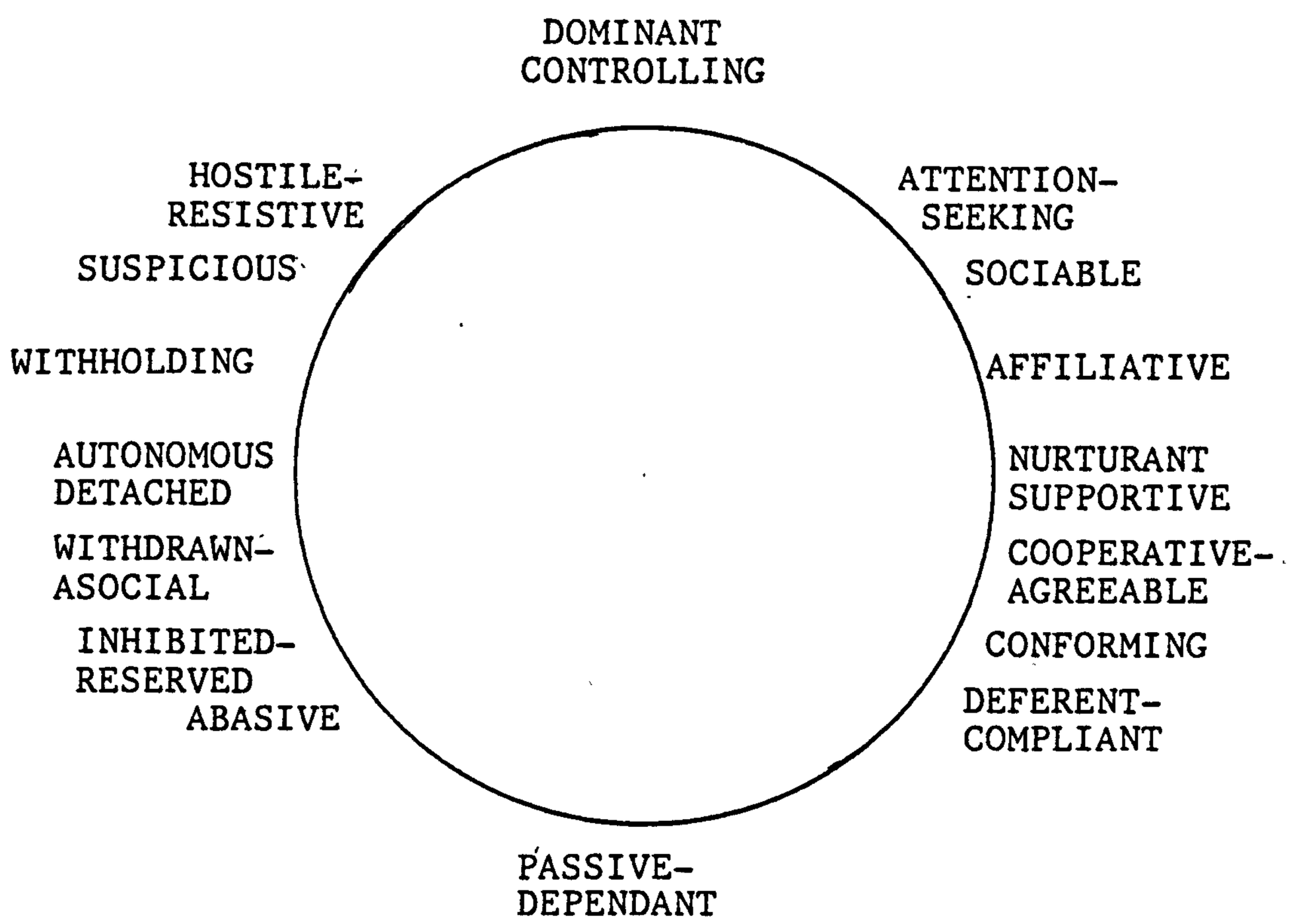


Figure 24 An example and synthesis of a number of circumplex models of interpersonal behaviour

Source: Lorr and McNair (1963:73)

form of neurotic behaviour. Furthermore, she criticsed Leary's interpretation of the position of Sullivan. To her Sullivan's position is one of believing, first, the individual pursues the satisfaction of needs such as hunger, thirst, lust and loneliness. Second, Sullivan considers individuals seek security through enhancing self esteem and power by means of goal attainment and interpersonal power strategies which, if successful, promote anxiety avoidance. Baumrind (1960) concluded Leary has understated the adaptive goal seeking nature of human endeavour whilst over-emphasising the central motive of anxiety avoidance.

In sum, the Interpersonal System is a flexible system for viewing interpersonal behaviour. It was originally developed in a psychiatric institution using the theoretical insights of H.S.Sullivan. Leary has highlighted the importance of anxiety reduction as a prime motive in interpersonal relations although this has received criticism, again from a psychiatric quarter (Baumrind 1960). However, in defence of the System it has been used, with some success, for research purposes on normal, as opposed to psychiatric patients (Chenault and Seegars 1962, David 1962, Frost 1963, McDonald 1962).

In order to understand the complexity of the System and its approach to an essentially complex set of behaviour patterns, a number of fundamental concepts must be elaborated.

1. The Interpersonal Reflex (IR)

   The interpersonal reflex is defined as observable expressive units of face-to-face social behaviour. They are automatic and usually involuntary responses to interpersonal situations. IR's are often independant of the content of a human communication and are spontaneous methods of reacting to each other. IR's are primarily expressed in voice intonations, gesture and bodily posture. They are, therefore, complex products of verbal and non-verbal communication. IR's are not necessarily conscious processes and they are probably

the most important single aspect of interpersonal behaviour. Many individuals do not react with consistently appropriate behaviour and flexibility. In fact most individuals tend to 'train' others to react to them within a narrow range of behaviours. They, in turn, will show a restricted set of favoured reflexes (Leary 1957).

2. The Interpersonal Role

Leary (1957) indicated that the majority of people manifest automatic role patterns in response to others. These roles are probability functions of expressing certain interpersonal behaviours with significantly higher frequencies. A role relationship is said to exist when an individual uses certain interpersonal mechanisms more than chance and tends to pull certain responses from the other. The tendancy to employ certain behaviours and pull a correspondingly narrow response from others is mutually reinforcing (Leary 1957).

3. The Principle of Self Determination

The principle concerns the attribution of responsibility for a situation to the self. However, Leary (1957) noted human beings tend to resist taking responsibility for their situations. Furthermore, he argued individuals will strive for independance, power, popularity and affection but less understandable that individuals will also seek dependance, weakness, distrust and self-effacing modesty, ie. that they do seek to defeat themselves. Cultural contexts also require that individuals adopt certain behaviour patterns in order to survive and as a consequence there is a pressure for individuals to repeat behaviours. The individual will also prefer to adopt certain behaviours in order to reduce interpersonal anxiety. He/she will, therefore, seek out those social environments where the individual will feel comfortable and anxiety is reduced. Leary suggested an insoluble dilemma for interpersonal adjustment, namely, stability versus flexibility (Leary 1957).

4. The Principle of Reciprocal Interpersonal Relations

In any social interaction individuals will tend to pull reciprocal responses that tend to strengthen the original action. As indicated previously this is a probability principle. However, with certain personalities, the symbiotically 'sick', the more maladapted the personality the greater the power to determine the nature of relationship with others (Leary 1957).

5. The Interpersonal Trait

This has been developed to systematise the enduring tendencies of personality. The structural elements are considered to be conscious or private tendencies to perceive and respond to certain types of environmental stimulii. The interpersonal trait is, therefore, a description of the manner in which an individual consciously or privately perceives his social world, including himself.

The System uses five depth levels of personality (Freedman et al 1951, Laforge et al 1954, Laforge and Suczek 1955, Leary 1957).

Level 1 - The Level of Public Communication which defines the interpersonal behaviour of individuals as perceived by others.

Level 2 - the Conscious level which defines the world of the individual as perceived by himself.

Level 3 - Private Symbolisation which defines the abstract fantasy world of the individual.

Level 4 - this level includes the interpersonal themes systematically and compulsively missed from other levels by the individual.

Level 5 - the level of moral values and ideals. Although the System assigns a level to this area it does not represent a depth level of personality.

Laforge and Suczek (1955) designed an interpersonal check list (ICL) to measure a number of the variables defined by the Interpersonal System. They have noted that although the ICL was specifically designed to fit within a theoretical schema it has research applications that are independant of the theory.

The ICL classification system is made up of 16 interpersonal variables arranged in a circular continuum (Laforge and Suczek 1955).

Figure 25 sets out the ICL schema and axes.

In research investigating the relationship between needs and behaviour, Gynther et al (1962) undertook a correlational study between the Edwards Personality Preference Schedule (EPPS) and the ICL. A pilot study indicated the n-Ach dimension on the EPPS was found to be significantly negatively correlated with the managerial-autocratic variable. In the main study it was found n-Ach (EPPS) was not significantly related to either of the four dimensions COM, DOM, RES or LOV.

Furthermore, those individuals stressing the competitiveness variable on the ICL would, from the EPPS, be inferred as individuals having needs to be autonomous, dominant and aggressive. These individuals would not have needs to help others, be helped by others, be friendly towards others or take the blame when things go wrong. An individual, where the needs for affiliation and nurturance were high and needs to be autonomous and aggressive low, would be characterised on the ICL dimension of affiliation or love. These results led Gynther et al to conclude that if the EPPS was related to needs and the ICL to behaviour then these two factors were directly related. However, they noted the relationship could be more complex and, to an extent, relied on assumptions that ICL data was more closely related to behaviour and EPPS data more closely related to needs. However, Lorr and McNair (1963) do lend support to Gynther et al's description of the individual with a need for autonomy. The former describe the autonomous individual as one who is detached and uninvolved. Furthermore, they describe his behaviour as wanting neither direction nor control, obligation or responsibility in relation to others.

Table 20 sets out a breakdown of the ICL and EPPS variables.

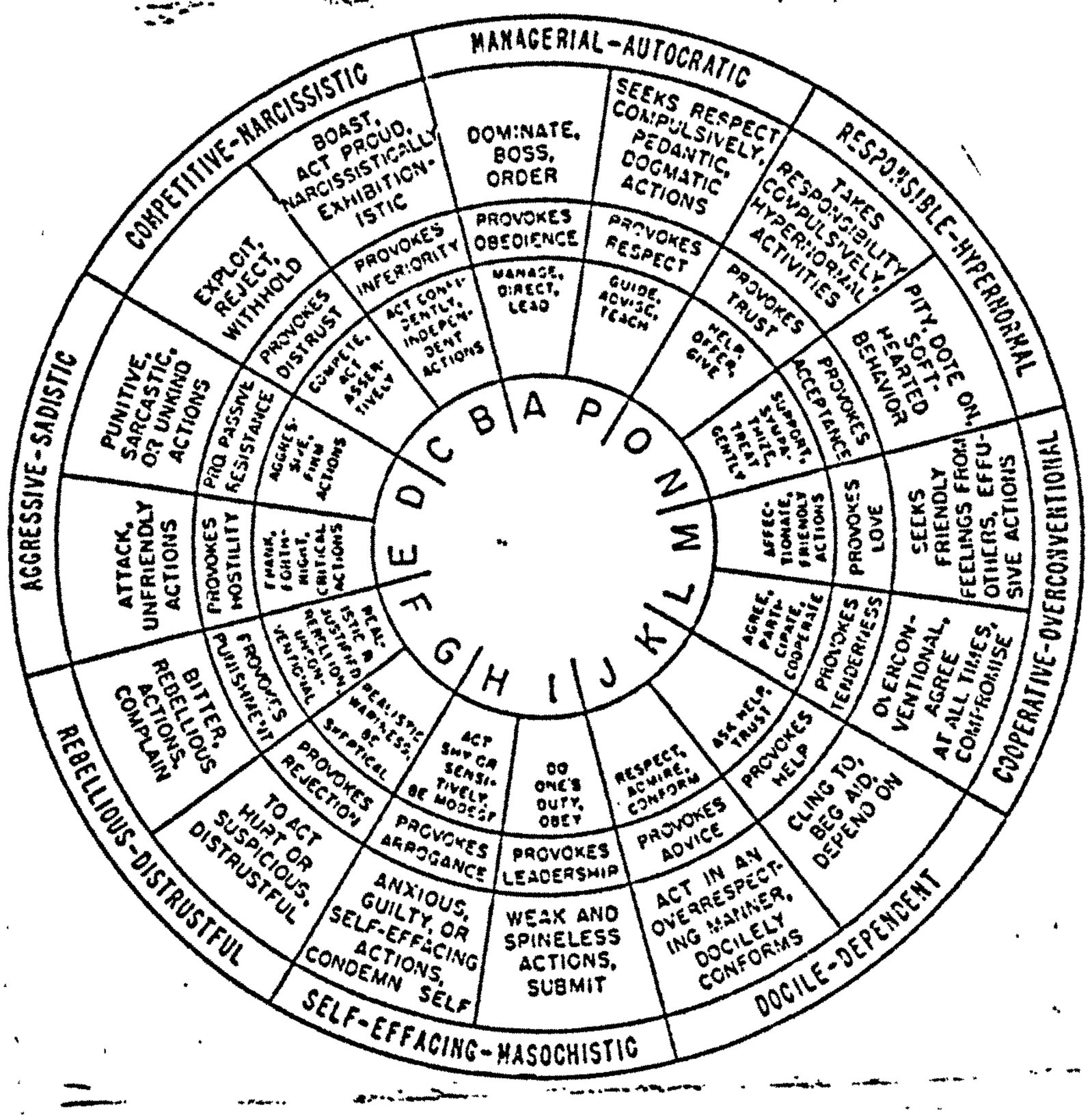
The Link with Environmental Psychology

Mehrabian and Russell (1974) have suggested a useful approach to environmental psychology. The basic concerns were,

1. the direct impact of physical stimuli on human emotions
2. the effect of physical stimuli on a variety of behaviours such as work performance or social interaction.

DOMINANCE

HOSTILITY



AFFILIATION

SUBMISSIVENESS

Figure 25 The Interpersonal Check List
Source: Leary (1957:65)

Table 20 Correlations between ICL and EPPS Variables*
Source Gynther et al (1962:449)

EPPS Variables	ICL Variables			
	COM	DOM	RES	LOV
Achievement	10	10	02	-09
Deference	-09	-02	-02	07
Order	-07	-07	-12	-03
Exhibitionism	15	22•	20•	01
Autonomy	35••	11	24•	40••
Affiliation	20•	05	18	22
Intraception	07	01	12	13
Succorance	26••	28••	10	14
Dominance	28••	32••	16	-14
Abasement	-20•	-11	11	24•
Nurturance	-23•	-05	19	27••
Change	09	-08	-17	-13
Endurance	-12	02	11	18
Heterosexuality	01	06	03	02
Aggression	34••	06	-34••	-47••
(Consistency)	00	02	09	09

For N = 95

• $p \leq .05$ ($r = \pm 20$)

•• $p \leq .01$ ($r = \pm 26$)

* Decimal points omitted

Mehrabian and Russell proposed that physical or social stimuli, present in the environment, will directly effect the conditional state of the individual and influence behaviour. They suggested three emotional response variables, namely, pleasure, arousal and dominance summarise the emotion eliciting potential of environments. They are mediating variables which determine a variety of approach-avoidance behaviours. Figure 26 sets out their proposed theoretical framework.

The three emotional dimensions are characterised by the following,

1. Pleasure

   This is a feeling state. Mehrabian and Russell distinguish it from preference, liking, positive reinforcement or approach avoidance. They noted, however, that although the latter response variables are correlated a distinction must be maintained since they are also determined by the arousal quality of an environment.

2. Arousal

   This is a feeling state which varies along a continuum ranging from sleep at one extreme to frenzied excitement at the other.

3. Dominance

   Dominance-submissiveness is again a feeling state. From a behavioural perspective dominance is usually measured in terms of postural relaxation. It is independant of the two other dimensions. In any situation an individual's feeling of dominance is based on the extent to which he feels free to act in a variety of ways. The feeling of freedom of action can be restricted in environments that limit the forms of behaviour or can be enhanced by settings that allow a greater variety of behaviours. Mehrabian and Russell further added that in social environments behaviour will be constrained in more formal settings than in informal settings. Feelings of dominance are inversely related to the potency of the environment that is, if physical stimuli are more intense, ordered and more powerful then feelings of dominance will tend to be blocked. However, they added a cautionary note.

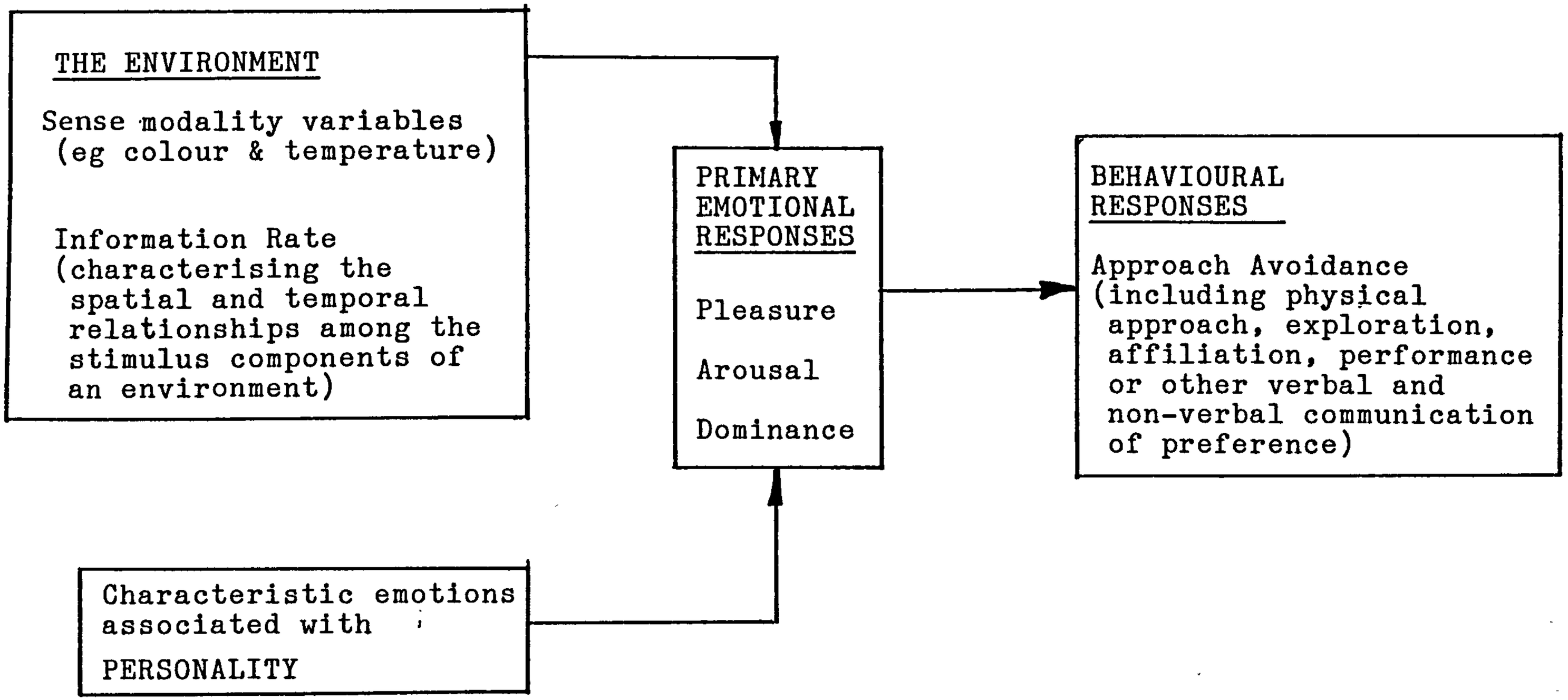


Figure 26 A model for environmental psychology
Source: Mehrabian and Russell (1974:8)

> The dimension of dominance has received little empirical investigation and any comments were, therefore, only tentative.

In their theoretical discussions Mehrabian and Russell distinguished between characteristic levels of emotions associated with an individuals personality - the dimensions were called trait dominance, arousal and pleasure and momentary feelings that were described in terms of state dominance, pleasure and arousal.

Mehrabian and Russell (1974) have applied their theory to interpersonal behaviour. They have couched it in terms of approach avoidance behaviour and describe it variously as affiliation, conformity, co-operation, liking, aggression and hostility. They noted the evidence indicated it is the reinforcing quality of the other person that is the primary determinant of the degree of affiliative behaviour elicited from an individual (Mehrabian 1971, Mehrabian and Ksionzky 1972). They viewed affiliation as an approach behaviour which is perpetuated by the exchange of positive social cues. Furthermore, other factors that increase the tendency for affiliative behaviour include the pleasantness of the surroundings and the spatial proximity of individuals. However, within the experimental framework associated with their theory Mehrabian and Russell were unable to conceptualise and explain completely the desire to affiliate in terms of the three primary determinants of behaviour. This led them to conclude that it may be independant of other approach-avoidance behaviours.

Section Summary

Interpersonal behaviour is that which relates overtly, consciously, ethically or symbolically to another human being. It lies at the root of all human endeavour and the adequacy of interpersonal behaviour is vital for human survival and growth (Leary 1957).

A number of different systems have been developed to study interpersonal behaviour (Argyle 1967, 1969, 1981, Bayles 1970, Foa 1961, Leary 1957, Solomon 1981) and a considerable body

of empirical evidence is amassing which shows that interpersonal behaviour can be described as a circular ordering of traits (Conte and Plutchik 1981, Foa 1961, Lorr and McNair 1963, Lyons et al 1980, Laforge and Suczek 1955, Leary 1957) with a primary dimension of dominance-submissiveness underlying it (Bayles 1970, Briar and Bieri 1963, Foa 1961, Golding and Knudson 1975, Gynther et al 1962, Laforge and Suczek 1955, Leary 1957, Truckenmiller and Schaie 1979, Solomon 1981). The Interpersonal Personality System (Leary 1957) has been suggested as offering a useful approach for the present study.

The Interpersonal Personality System is a multi-level classification system for explaining interpersonal behaviour. Theoretically, it uses the work of Harry Stack Sullivan and has been translated into empirical investigations with the development of the interpersonal check list (ICL) (Chenault and Seegars 1962, David 1962, Frost 1963, Laforge and Suczek, Leary 1957, McDonald 1962). The ICL is a classification system of 16 interpersonal variables arranged in a circular continuum (Laforge and Suczek 1955) and has an intensity component (Leary and Coffey 1955). The system can be reduced to four major dimensions, namely, dominance-submissiveness, affiliation-hostility, responsibility and competetiveness (Laforge and Suczek 1955, Gynther et al 1962).

The concept of environmental psychology has been introduced (Mehrabian and Russell 1974). It is concerned with the impact of environmental stimuli on behaviour. Three emotional variables, namely, pleasure, arousal and dominance, act as mediating variables in approach avoidance behaviour. They note these three primary dimensions are not sufficient to explain the interpersonal desire to affiliate. Mehrabian and Russell have suggested it may be independant of other approach avoidance behaviours.

The theoretical framework and literary anaylsis of variables to be investigated in the present study is now completed. The major variables are,

- Professionalism
- Organisational structure
- Job achievement climate

- Need for achievement
- Interpersonal orientation

Chapter 6 will draw together the foregoing within the context of Quantity Surveying to suggest a Paradigm for the research design.

Chapter Notes

1. Rosen (1961), on reviewing a number of studies, indicated the first born child recieves more achievement training, is more competitive than other siblings, is more adult oriented, serious and conscientious whilst a second born is more peer oriented. The only child is not likely to receive self reliance training or autonomy training. These are more frequently found in the experience of the oldest child with several siblings.

   However, Rosen's data indicated social class was an important influence on the impact of family size on ordinal position. In the lower class n-Ach scores for oldest, youngest and intermediate children all declines as family size increases. The decline was more marked among the oldest than intermediate or youngest. In the middle class the scores for oldest children were higher than those for intermediate and youngest except in small families where the score for the youngest was slightly higher. Rosen concluded that in view of the interaction effects it would be unwise to isolate any one demographic factor as an explanation of achievement motivation.

2. Turner (1970), as noted, earlier, considered that father's occupation was entrepreneurial if it involved at least the following four elements,
   i) a high degree of autonomy or freedom from direct supervision by others
   ii) authority over at least two levels of subordinates
   iii) decision making obligations
   iv) co-ordinating resources, men and/or materials

   Turner noted that he did not include an innovative component since it was difficult to measure.

   Turner also distinguished the following occupational roles.

   a) White collar status role
      - managers in bureaucracies
      - owners of a business
   b) Blue collar status roles
      - managers in an industry or factory
      - owners of a business
   c) Farmers

c) Farmers
   - managers of a farm
   - owners of a farm

Non-entrepreneurial occupations were classified as,
   - routine white collar employees
   - routine blue collar employees
   - subsistence farmers

It must be noted that Turner's classification system for entrepreneurs is restrictive since it ignores the single worker business. He has no authority over subordinates but is still in an entrepreneurial role as a business owner.

3. First born and only children appear to have a special relationship with parents. It is a combination of positive parental attention and high parental expectations that lead first and only borns to set relatively high standards for themselves. Falbo notes this effect was found for educational aspirations. First and only borns reported a higher level of educational aspiration than last borns. This combined category relationship was not found for any of the four achievement motivation factors.

   Falbo noted first borns scored higher on the competitiveness factor in comparison to last borns. The scores of only children did not differ from the other remaining categories. Falbo concluded it was the presence of siblings that could account for differences in competitiveness. He indicated sibling rivalry could create a climate of competitiveness within the family. First borns would be in a more advantageous position than later born children in vieing for parental attention. However, only born children would lack sibling rivalry and a climate of competitiveness and would, therefore, not be expected to differ from other birth order categories.

4. McClelland (1967) does not define the term 'traditional Catholics'. It can be presumed from his reasoning, that they are not individuals who have been exposed to the liberalising influences of American middle class society but are reflected in the early social compositions of Catholic European society shortly after the Protestant Reformation. It would appear that the term is a value judgement on the part of McClelland.

CHAPTER 6

A SYNTHESIS AND PARADIGM

INTRODUCTION

The following chapter presents a synthesis of research and literary evidence from previous chapters. It will provide an overall picture of Quantity Surveying within an individual, organisational and occupational framework.

THE INDIVIDUAL PERSPECTIVE

The individual is conceptualised as a product of hereditary factors and experience and is goal directed. These influence the way the organism perceives the world and the expectancies that an individual brings to a situation. Therefore, within the present theoretical framework the individual operates within an organisational role system to which he/she has brought experiences of and expectancies about the occupational melieu which forms part of working life. The organisation, in terms of its structure and climate, is perceived by the individual and mediates the relationship between personality and behaviour. Need for achievement and interpersonal behaviour are only two components in the complex interplay between the individual, the organisation and the occupation.

Need for Achievement

The author disagrees with McClelland's (1967) restrictions placed on achievement motivation theory and its relationship to professionals and entrepreneurs. First, the term 'professional' is a loose term describing a variety of occupations that vary in their contact with the business world. The present study has already suggested that the occupations of Accountancy and Quantity Surveying have a close affinity for corporate capitalism. Second, the investigations of the Monopolies and Mergers Commission (HMSO 1970, 1977) have suggested that in many instances 'the professions' were operating restrictive practices to exert control over the market place. As such, they were as susceptible to the dictates of the business world as any other occupation, including those non-professional occupations involving entrepreneurial activities. Third, McClelland (1967) has admitted that he is interested in entrepreneurial role behaviour and, provided

the prerequisites are present, any role can have an entrepreneurial element which will facilitate the emergence of n-Ach. Fourth, McClelland (1967) has suggested that the prerequisites for achievement striving are personal responsibility for task accomplishment, freedom of choice in pursuing goals, unbiased feedback, moderate risks, a future orientation and innovative behaviour. The author contends that each of these forms part of the professional role, especially if continued professionalisation is sought. Furthermore, many professionals, especially those closely allied with corporate capitalism, are becoming more and more involved in the managerial functions of business. This must further add weight to the applicability of achievement motivation theory to 'professionals'. Finally, the professional role involves measuring performance against internalised norms established from training, it is a central life interest and involves individual achievement (Elliot 1972). Each of these is remarkably close to the description of activities in which individuals are likely to express a high need for achievement.

In conclusion, the present study considers that achievement motivation theory is applicable to Quantity Surveying because individuals are likely to be involved in entrepreneurial role behaviour. They operate in an occupation that has strong business overtones and many practitioners are actively pursuing managerial careers. It can be expected that the more competitive environment of contracting may attract those individuals who are likely to be more entrepreneurially inclined. The social composition of Quantity Surveying has been suggested to be diverse. This would suggest a wide variance in the strength of the achievement motive among individuals with those quantity surveyors originating from middle class backgrounds expected to have a higher n-Ach. However, the stated low academic calibre of recruits, in the past, may suggest a more complex relationship between social class and n-Ach.

Interpersonal Behaviour and McClelland's Trichotomy of Needs

There is considerable overlap between the conceptualising of McClelland (1967, 1970), Boyatzis (1973) and Leary (1957) concerning the origins and effects of interpersonal behaviour. Furthermore, Mehrabian and Russell (1974) have used the three primary emotional responses of arousal, pleasure and dominance to partly explain certain aspects of the desire to affiliate.

A number of conceptual distinctions must be made among the differing perspectives.

i) McClelland (1967, 1970) has suggested that a need must be capable of being distinguished from factual behavioural outcomes. Need for achievement is not an interpersonally oriented motive as are n-Pow and n-Aff. n-Pow is suggested to be divided into personalised and socialised power. The former relates to dominance-submissiveness. McClelland maintains that the trichotomy of needs must be measuring by projective tests and operate at the unconscious level.

ii) Boyatzis (1973) suggests that the desire to affiliate is a combination of approach and avoidance concerns.

iii) Mehrabian and Russell (1974) view the desire to affiliate in terms of an approach-avoidance behaviour that is partly determined by the three primary emotional determinants of behaviour.

iv) Leary (1957) and his associates make no redress to drives or needs in their discussions of interpersonal behaviour. At the conscious and unconscious levels of personality the interpersonal behaviour patterns of the individual are determined in terms of self and other. This includes the scoring of TAT protocols as a projective measure of unconscious behaviour. Furthermore, the three levels of interpersonal behaviour when related together often show a considerable degree of displacement, ie. unconscious interpersonal behaviour may be different from the individual's conscious perception of his/her own behaviour which in turn is different from interpersonal behaviour as viewed and experienced by others.

> Leary also interprets behaviour with reference to dominance-submission and hostility-affiliation (as do many other interpersonal researchers). This would appear to be a different notion from that envisaged by McClelland.

The conceptual overlap strikes at the heart of the controversy about the relationship between overt behaviour and covert motivation. The author prefers to adopt a stance similar to Mohr (1982). The author conceptualises the individual as being in an activated state which is a function of any number of non-specific interacting stimulii. A situation may arise which activates a particular motivating complex and becomes a dominant force impelling the individual towards action. Like Mohr, the author believes that the motivating complex is again caused by a number of interacting stimulii and can be a combination of conscious and unconscious factors. However, the individual is then faced with a choice situation. He/she can decide to proceed with the motivated behaviour, perhaps modifying it within the constraints of his/her personal value system. Alternatively, within the context of the situation facing the individual, he/she may decide to override the motivational impetus. The author does not accept that all motivational impetuses are automatically transferred into overt behaviour. The individual is part of the environment but at the same time is capable of being separate from it through the exercise of choice. Therefore, in order to understand any motivated behaviour of individuals it is necessary to have an awareness of overt behaviour and covert potential.

Interpreting the foregoing within the framework provided by Fineman (1975), McClelland (1967) and Weiner (1970) on n-Ach, Leary (1957) and Mehrabian and Russell (1974) the following picture emerges. The environment is a source of achievement oriented cues that have a potential for eliciting achievement striving. Simultaneously, the environment must have the ability to elicit feelings of dominance in order to allow the individual to experience a free choice situation. When this occurs the individual is in a position to,

i) Choose to perform achievement oriented tasks.
ii) Arrange the environment to increase the likelihood of achieving success.

Evidence for the above proposition is supported from two sources. Gynther et al (1962) have noted that n-Ach (as measured by the EPPS) was not correlated with Dominance (on the ICL). McClelland (1967) has noted that, over time, the individual experiences feelings of pleasure with achievement striving. Within the context of environmental psychology pleasure and dominance are viewed as an independent source of emotional responses to the environment.

The foregoing has a number of implications for organisational behaviour. First, in organisational roles that are highly formalised the high achievement oriented individual will have restrictions placed on his freedom of choice. This is likely to reduce achievement striving. Second, as hierarchical position increases the individual will have a greater potential for martialling resources to allow greater freedom of choice and, therefore, arrange the environment to achieve success.

When placed within the context of Quantity Surveying it can be expected that,

i) Those in more senior positions will have greater autonomy which will allow increased achievement striving.
ii) Those in middle and lower ranking positions will have less freedom of choice and as a consequence achievement striving will be reduced.
iii) Following on from (ii) those performing technical tasks, which have greater procedural specifications (Standard Methods of Measurement) and are usually performed by the lower ranking surveyors, will experience lower achievement striving.
iv) Those quantity surveyors occupying more formalised roles will experience less achievement striving. This would suggest, contrary to McClelland (1967), that those in Government would face situations of less freedom of action and, over time, the more highly achievement oriented individuals would self-select out of this type of employment.

v) Those in higher ranking positions will perceive their working environments as more achievement oriented since they have been able to arrange their situation to facilitate achievement oriented successes.

Need for Achievement, Interpersonal Behaviour and Professionalism

The relationship between achievement striving and interpersonal behaviour, within an organisational context, has been discussed in the previous section. The following section discusses the implications of these variables for professionalism.

Prior to amalgamation in 1982 the IQS and RICS represented structural differences in the occupational organisation of Quantity Surveying. Although members of each institute appear professionalised on Hall's (1969) structural dimension it can be expected there may be differences between members on the attitudinal dimensions of professionalism.

Each institute may have attracted individuals from different social classes and with different educational aspirations. If this is the case, there will be implications for the distribution of achievement oriented individuals between the institutes. Furthermore, contracting organisations operate in a highly competitive environment and there may be structural differences in terms of interpersonal behaviour patterns. It is highly likely that preferences for a professional institute may reflect an early career choice for either the contracting or the client side of the industry.

Furthermore, the attitudinal components of professionalism, like the personality factors, are affected by the organisational environment. It can be expected that there will be an association between those professionalism dimensions that are directly affected by the organisation, such as autonomy, and the personality dimensions of need for achievement and interpersonal orientation.

Section Summary

Achievement motivation theory is suitable for the investigation of a specialised occupation like Quantity Surveying. The conceptual overlap between McClelland's conceptualisation of

interpersonal needs and Leary's conceptualisation of interpersonal behaviour has been discussed within the context of environmental psychology. The importance of individual choice, in motivated behaviour, has been highlighted. A possible solution to the problem between overt and covert behaviour has been suggested. The environment activates achievement striving in the individual and at the same time may elicit feelings of dominance. This in turn will allow the individual to feel free to act and arrange the environment to facilitate success in achievement oriented tasks. The implications for organisational behaviour have been discussed in terms of formalisation and hierarchical position.

Institutional differences in the organisation of Quantity Surveying have been discussed. Structurally, prior to amalgamation, the RICS and IQS tended to represent members who worked in different parts of the construction industry and had different relationships with clients. This may have implications for attitudinal professionalism as an occupational power strategy. Furthermore, the different structural arrangements may also reflect different social compositions of the institutes and, therefore, different educational, motivational and interpersonal behaviour patterns. The ability of the organisational environment to influence professionalism, motivation and interpersonal behaviour may lead to a complex set of interrelationship between these variables.

THE ORGANISATIONAL PERSPECTIVE

Introduction

Individuals work within organisational frameworks that have differing organisational objectives or goals. These will have an influence on the structuring of the occupational task and the manner in which it relates to the overall organisational structure. The three broad areas within which quantity surveyors work are those of,

i) Private practice
ii) Contracting
iii) Government, both Central and Local

Professional organisations are those pursuing professional goals. The previous chapter has cast serious doubts about the occupational status of Quantity Surveying, however, for consistency with literary evidence, the present section will discuss organisations within the context of professional or non-professional goal activity.

A number of organisational typologies have been mentioned in discussing the theoretical framework for the present study. The most useful will be the work of Blau and Scott (1963), Etzioni (1961, 1964) and Scott (1965). Hall's (1969) typology of work settings will be treated with circumspection as the conceptualisation has been seriously questioned. This will also cast considerable doubt on the work of Foreman (1975) who has used the typology,without questionning its validity, in his study of the American Architectural profession. Foreman has also accepted, without question, the structural component of Hall's professionalisation model. This may be insufficient for establishing the status of an occupation without specific reference to an historical perspective. Furthermore, the present section will not use the distinctions made by Etzioni (1964) of the differences between full fledged and semi-professional organisations. This distinction rests primarily on the length of training and guarantee of privileged information. The training issue would confuse the present discussion since Quantity Surveying requires a five year training period for qualification and its professional base is open to question. Furthermore, the rhetoric of the professional associations claims that the client-practitioner relationship is subject to confidentiality. The latter issue would also add little to the present discussion.

A general organisational schema

1. Private Practice

Private practice organisations could be classified as service organisations since they are providing a

Quantity Surveying service to client organisations (Blau and Scott 1963). As organisational size increases lower participants will become increasingly subject to utilitarian power although normative means of control will also be in evidence (Etzioni 1961). The major organisational goal will be 'professional' and any administrative framework will be subordinate to the professionals (Etzioni 1964). Higher ranking professionals will be more susceptible to direct client influence since they are fee earning. The lower rankings are less amenable to direct client pressure. The organisation would, however, be expected to apply pressure through utilitarian means and contractual obligations.

2. Contracting

The contracting organisation can be either a Business concern if privately owned or a Mutual Benefit Association if the company is subject to public shareholdings (Blau and Scott 1963). Whichever is the case, the contracting organisation pursues goals directed towards profit maximisation (or optimisation) and not professional objectives (Etzioni 1964). The location of quantity surveyors within the organisational framework is difficult, much will depend on organisational size. However, in the main they will be found in specialist departments, attached to other functional departments or, depending on promotion, within the ranks of the managing directors and directors. Quantity surveyors may also lack a specific surveying title but may operate under the guise of contract management. They will be subject to an administrative framework whose primary objective will be the profit motive (Etzioni 1964). It can also be assumed that utilitarian means of control will be more dominant even though quantity surveyors may be working within functional departments (Etzioni 1961).

3. Central and Local Government

Organisational objectives will be diffuse. Blau and Scott (1963) would describe these organisations within their Commonweal type. Quantity surveyors may be located within separate functional departments or as a section within a functional department. In this latter case they may be subject to the control of another profession.

Whichever is the case, quantity surveyors will be subject to an administrative framework (Etzioni 1964). This may be qualified, however, if promotion prospects have allowed a quantity surveyor to proceed to an administrative career within Government. It can be assumed that there will be a complex interplay between normative, utilitarian and contractual means of control.

Organisational structures and work roles

Hall (1977) has suggested that a false heirarchy may exist with professional workers. Hunt (1972) has suggested that the emergence of some form of heirarchy is inevitable in the organisation of human endeavours. The present study will assume that even within private practice and functional departments in the public and private sectors, some form of hierarchy will exist amongst quantity surveyors. 'The present study does not, therefore, accept the myth of peer structuring, without qualification, as exemplified in the work of Blau and Scott (1963), Etzioni (1964), Godde (1957), Greenwood (1957), Hall (1969), Scott (1966).

1. General Considerations

A number of specific points require emphasis concerning the work settings of quantity surveyors. First, although they may not have the status of true professionals they have acquired, through prolonged training, internalised skills and are able to perform them with a minimum of supervision. Therefore, quantity surveyors would expect decentralisation on task related matters but would probably accept centralised decision making on personnel and strategic organisational issues. This would depend heavily on sector of employment and organisational size since the relationship described above would have greater relevance in Government and contracting and perhaps the larger private practices. Furthermore, in private practice the relationship would depend on heirarchical position with those in the top tier of practices more involved in strategic and personnel matters (Robbins 1983).

Hilliers' (1979) study of Architectural practice would suggest that those in private practice may experience

more fluid structural relationships than those in the public sector. At the present time information on contracting is conjectural.

At the level of the work role it can be expected that there will be considerable structural differences according to organisational unit and hierarchical position (Hall 1977). The largest impact will come from sector of employment where, as Hillier noted, role rigidity is considerably more prevalent in the public sector. Furthermore, using the work of Hall (1968), Hillier (1979) and the Practice Survey (RICS 1974) it can be expected that,

i) In the Public Sector
   - Senior quantity surveyors will move away from direct and full responsibility for projects and their managerial function will increase.
   - Responsibility for projects will be displaced down the hierarchy.
   - Professional accountability will be removed to the administrative framework.
   - The organisational structure will be viewed as obstructive and allow individuals less autonomy.
   - Status differences between quantity surveyors and other professions will have a significant effect on individual motivation and attitudes.

ii) In Private Practice
   - Senior quantity surveyors will have closer contact with individual projects and maintain more direct and full responsibility.
   - Senior surveyors will have closer contact with clients and undertake a greater proportion of tasks attributable to the 'technologist'.
   - Middle and lower level surveyors will perform a mixture of technologist and technician functions. However, the latter group of surveyors will be predominantly performing technical tasks.
   - Organisational size will have a confounding effect on the above.

iii) Contracting

- Senior quantity surveyors will be heavily involved in management functions and strategic organisational decisions.
- Middle and lower level surveyors will be involved in a mixture of managerial, technologist and technician functions with the latter group of surveyors involved in more technical tasks.
- Organisational size will have a confounding effect.

2. Specific Considerations

Turner (1979) has indicated that Quantity Surveying practice may be structured along a number of different lines. No specific structuring relationships can be predicted at the present time since the choice of parallel, production or complex group arrangements is a question of specific organisational preferences. However, Turner has noted that parallel and production group arrangements have consequences for job satisfaction. This will be further elaborated in the section dealing with organisational commitment.

The Contingency Factors

1. The Effects of the Authority Structure

The type of power used within an organisation will depend on the organisation itself, the people and vary according to hierarchical rank (Etzioni 1964). It can also be expected to vary according to sector of employment and organisational size. Quantity surveyors, as mentioned previously, have internalised task norms inculcated during training. Supervision would, therefore, be expected to be minimal. However, as cited earlier, the author does not agree that professionals are regulated by peer surveillance whilst bureaucrats are subject to the managerial line hierarchy. The structuring of human activities will always occur and some form of hierarchy will evolve even among professionals. The present study, therefore, expects that quantity surveyors in the lower organisational ranks will experience some form of direct supervision. The issue remains one of degree. The

bureaucrat may well experience high positional supervision, the professional will experience it to a lesser extent. Therefore, it can be expected that,

i) Those in the senior ranks of private practice will experience more normative controls and approximate the peer control situation. Those in the lower ranks of private practice will experience greater utilitarian control and move further away from the peer surveillance model. This relationship will be dependant on organisational size.

ii) In the public sector it will be expected that quantity surveyors will be found, in the main, among the middle and lower ranks of the organisation. There will be a corresponding use of utilitarian controls, although as Hall (1969) noted, where professionals are located in a department the environment may be very similar to private practice. In the public sector, therefore, the power structure is likely to be complex.

iii) In contracting, those in senior positions will be subject to utilitarian controls to a greater extent than normative controls due to the more competitive environments within which contracting organisations operate. The lower ranking quantity surveyors will be subject, in the main, to utilitarian control mechanisms. However, again the presence of functional departments may well mediate the relationship and a complex power structure is to be expected.

2. The Effects of the Environment

The construction industry faces a hostile and dynamic environment (Mintzberg 1979). As hierarchical position increases, the contact with and influence of the external environment becomes more pronounced. However, sector of employment will mediate the relationship. Those working in contracting, in general, will experience a more hostile and dynamic environment than those working in either private practice or Government. Furthermore, those in more senior positions in contracting will experience the environment to a greater extent than those

located near the operating core (Mintzberg 1979). Therefore, the effect of the environment on individual role position will be complex and depends on hierarchical position and sector of employment.

3. Technology

The present study, whilst noting the importance of technology and its influence at the organisational level, has adopted the premise that its major effect will be felt at the level of the individual task (Gerwin 1979, Robbins 1983). Tasks performed by quantity surveyors will vary according to heirarchical position, sector of employment and organisational size. The last point is especially important for the smaller organisation where it can be expected that an individual will perform a wider range of activities than would be the case in the larger organisation. This has been confirmed by the Practice Study (RICS 1974) which found that specialisation increased with organisational size and was especially prevalent in the Public sector.

4. Organisational Size

The effects of organisational size, apart from those already highlighted, will be diffuse. As a variable it operates at the macro-organisational level with more certainty than at the role position. However, cognisance must be taken of this important variable and any possible effects on role structuring. Hillier (1979) has noted that the effects of size may be subtle. His findings would suggest that senior quantity surveyors in larger organisations would be more involved with the strategic ie. client end of the project, regardless of a public/private split. This would also be expected to hold for contracting organisations. The Practice Study (RICS 1974) supports this view for Quantity Surveyors.

Organisational Commitment

The literature on organisational commitment poses a number of problems for the present study; there is a noteable lack of consistency in the findings. This in turn is related to results produced from studies that artificially dichotomise the cosmopolitan-local construct and the professional/ bureaucratic orientation whilst using diverse sampling groups. The following discussion will highlight the problem. A professional orientation (or cosmopolitan orientation) was found to be negatively related to organisational commitment in the following studies - Blau and Scott (1963), Greene (1978), Sorensen and Thomas (1974). Each study used a sample of social workers, engineers and certified public accountants, respectively. Bartol (1979) and Aranya and Ferris (1983) found a positive relationship between professional orientation and organisational commitment. These studies used samples of computer specialists and certified public accountants, respectively. Two studies found that professional orientation and organisational commitment were compatible under certain conditions. Glaser (1963) concluded that a cosmo-local orientation was a dual orientation of highly motivated individuals. The distinction between orientations would only occur if the organisational structure stressed goals that were incompatible with individual goals. Thornton (1970) found a similar relationship. He suggested that a professional orientation and organisational commitment were compatible in a situation where the organisation stressed or reinforced the principles of professionalism. Again, both studies used different samples, Glaser (1963) a sample of scientists and Thornton (1970) a sample of college teachers.

A number of qualifying statements are required on the above. First, Blau and Scott (1963) only produced significant results on the importance of organisational structures as a source of frustration for professionals when they re-classified their data into multiple categories. Second, Sorensen and Thomas (1974) found that professional and bureaucratic orientations were affected by hierarchical position and organisational socialisation. Third, Bartol (1979) found that collegial maintenance of standards, one dimension of professionalism,

was negatively related to organisational commitment. Fourth, Goldberg (1976) highlighted the importance of contextual factors in the cosmo-local orientation. Furthermore, cosmos were oriented to the professional whilst locals were oriented towards the client. Goldberg used a sample of engineers. Fifth, Gouldner's (1957-58) study highlighted a number of different types of cosmo and local, each having different consequences for the organisation and each recruited from different factions and age groups. This fact is seldom discussed in other work on reference group behaviour.

Therefore, in summarising a body of ambiguous literature the following points emerge.First, organisational structure and goals are important in determining reference group behaviour. It is only when they are compatible with the value system of the individual will professional and organisational commitment coincide. Second, this compatibility may only occur with highly motivated individuals at certain points in their working life provided the working environment is correct and they are performing suitable organisational tasks. Third, other types of orientation will be in evidence in an organisation. In the main these will reflect an optimisation between organisation and profession.

Interpreting the foregoing within the framework of Quantity Surveying, it can be expected that different professional orientations will have emerged from those working within private practice, Government and contracting. However, this will depend on factors such as tenure, organisational task, the nature of the organisational structure, motivation profiles for individuals, the working environment and hierarchical position.

The final point to be discussed concerning organisational commitment is the presence of parallel, production or complex group arrangements for the structuring of the organisational task. Turner (1979) has already been quoted on the implications for job satisfaction. However, the production line arrangement creates an atmosphere of functional dependence. Morris and Steers (1980) have commented that under these conditions an individual's awareness of his/her contribution to the organisation is increased. It could be suggested contrary to Turner (1979)

that this type of structuring arrangement will increase organisational commitment. However, the suggestion is only tentative for a specialised group since the work of Morris and Steers (1980) utilised manual, clerical and administrative functions. Furthermore, within this context organisational commitment may also be enhanced under conditions exhibiting a moderate degree of bureaucracy since it will provide an organisational Gestalt for the practitioner (Engel 1969, Organ and Greene 1981).

Organisational Conflict

Literature surrounding the emergence of professional/ organisational conflict is confusing. This is due partly to diverse sampling frames from different occupational groups, organisational settings and degrees of professionalisation-specialisation (Kerr, von Glinow and Screisheim 1977). The emergence of professional organisational conflict is not always inevitable (Aranya and Ferris 1983). It may be restricted to those individuals in contact with the remainder of the organisation (Hall 1967). Furthermore, if it does emerge it will do so in a manner which may be described more in terms of political manouevring for autonomy and intra-professional resources (Green 1978). However, this latter point requires that the profession is located within an administrative framework over which it has some degree of influence. The degree of influence is directly proportional to the status of the occupation and its centrality to organisational functioning (Green 1978, Scott 1966).

The following points emerge when quantity surveying is placed within this context. First, the assumption of the inevitability of conflict is not made. Second, it is more likely to emerge in the Public sector where the quantity surveyor lacks the status and probably the organisational clout to exert any significant degree of control over the organisational setting (RICS 1974). Third, if conflict does emerge it will be restricted to those in senior Quantity Surveying positions within the organisation since they are likely to have greater contact with the remainder of the organisation. Conflict will, therefore, be role specific. There may be spill over effects

into the working environment that may not be perceived by lower ranks as conflict per se but as an unease with the organisation. Fourth, conflict may be experienced in contracting since the quantity surveyor is subordinate to an organisational framework dedicated to non-professional goals. However, its inevitability is questionned. It is suggested as a possibility rather than a probability. Fifth, conflict is more likely to emerge where the organisational goals do not directly coincide with those of the individual. It is less likely, therefore, to occur in a private practice setting. However, the foregoing must be qualified by the statement that some degree of inter-personal conflict will emerge in any organisation. The type of conflict under discussion relates specifically to that caused by an incompatibility between organisational functioning as a whole and a group or individual,not individual/individual conflict.

Organisational Climate

The theoretical discussion highlighted the importance of organisational climate and its impact on the individual. The present study focusses specifically on achievement oriented climate at the level of the individual's job. It is conceptualised as an organisational attribute perceived at the hierarchical position within the confines of an individual's organisational role. Achievement job climate mediates the relationship between the organisation and individual role behaviour. The literature review highlighted the following important relationships,

i) Hierarchical position has been found to be a consistent source of variance in climate studies.

ii) Organisational size has been found to have a significant effect on perceptual measures of climate. The present study uses a perceptual measure of climate.

Section Summary

The variables of organisational goals, organisational structure, achievement oriented climate, hierarchical position, tenure, functional dependance and sector of employment have been highlighted as important sources of variance in the role behaviour of quantity surveyors. The contextual variables

of the authority structure, the environment, organisational size and the nature of the task are expected to have a set of complex relationships with the foregoing.

THE OCCUPATIONAL PERSPECTIVE

The evolution of Quantity Surveying is a blend of environmental stimulii and inter-occupational rivalry for status. It owes its existence to architects divesting themselves of the measuring function and, as such, occupational development was in the past, independant of the Surveying professions. Furthermore, consolidation of the Surveying profession has been far from smooth and has been a blend of circumstance and political manouevring. To fully understand the different processes at work each of the models discussed in Chapter 2 will be applied to Quantity Surveying in order to reach conclusions at the occupational level.

Application of models

1. The taxonomic perspective and Millerson's (1964) guiding principles.

Fig 13 has distilled a number of dimensions that can be applied to Quantity Surveying (see page137). These describe Quantity Surveying as a complex occupation, especially in its relationship with others. It is organised and requires a prolonged period of training - a minimum of five years - to reach corporate membership of the main professional institution. Competence is assessed through multi-staged examinations and it is expected that members of the RICS (and prior to amalgamation, the IQS) adhere to a code of professional conduct. Altruistic service is stressed although this can be interpreted as rhetoric produced by the professional associations. However, Quantity Surveying is not an application of skills based on a body of theory. Therefore, from a taxonomic viewpoint, Quantity Surveying possesses six out of seven characteristics attributed to professions.

Millerson's guiding principles indicate that Quantity Surveying is a higher grade, non-manual occupation. However, Millerson noted that organisation and the

presence of a code of conduct are not sufficient to establish professional status. He stressed the importance of theoretical training for the performance of an intellectual or practical technique. The professional associations have taken subjective steps to acquire professional status although the public at large and school leavers in particular, are known to be unsure of its function. Clients can be assumed to have some understanding of its function, although this may depend on the level of client sophistication.

2. Hall's (1969) dual component model

Using the structural component of Hall's model,

i) The creation of a full time occupation is conjectural. Various sources have suggested it could have occurred as early as the 1750s whereas others have indicated the term quantity surveyor was in common use as late as the early 1900s. The evidence would suggest the conclusion that between 1800 and 1850 was the most likely period for the emergence of the Quantity Surveying function. During that period architects and architect-surveyors were locked in their struggle over status and the first public recognition of Quantity Surveying occurred.

ii) A training school for the Surveying profession was established in 1918 under the auspices of the College of Estate Management. Affiliation with a university occurred in 1919 with the establishment of a degree in Estate Management at the University of Cambridge and in the 1970s with the CEM's move the Reading University. However, the establishment of the college does not relate specifically to Quantity Surveying. In Scotland non-agricultural surveying courses were established in Colleges in the late 1800s and early 1900s.

iii) In England, the formation of the main Surveying institution occurred in 1868. The establishment of principal Quantity Surveying institutes occurred, in England, in 1903 and 1939 and in Scotland in 1881 and 1899.

iv) The code of ethics for the Surveying profession was established in the earl 1930s.

On Hall's structural component Quantity Surveying is fully professionalised. However, a number of points must be made. The structural component represents Wilensky's (1964) conceptualisation of professionalisation. He has indicated it is a sequential process. The above analysis reveals this is far from the case. First, the major events are not chronological. Second, the analysis has revealed the diversity of the formative process when taking into account specialisms within an occupation and any geographical dimension. The present analysis has suggested it is a major error to consider professionalisation as a chronologically sequential progression. It has highlighted a significant weakness in Wilensky's conceptualisation and Hall's (1969) model. Furthermore, it suggests a strong cultural bias.

The attitudinal component operates at the level of the individual. Each of the five attitudinal components has been referred to at various stages, within the context of Quantity Surveying, namely, the use of the professional organisation as a major reference (this can be implied from the existence of the RICS and IQS), a belief in service to the public (the rhetoric of altruistic service has already been suggested), a belief in self regulation (this stems from the existence of the RICS and IQS), a sense of calling to the field (Taylor 1980 and Coates 1977 have explored the issues of vocation) and finally, autonomy (stemming from the manouevrings of the professional institutes on a structural level and individual desires at the work level).

3. The political dimension

The process model of Bucher and Strauss (1961) highlights the importance of the political dimension in occupational striving. The model is particularly relevant for Quantity Surveying since it forms a major segment as a Surveying specialism. Furthermore, within Quantity Surveying there is evidence to support the existence of other segments, namely, from the diversity of practice between those working in the major areas of contracting,

private practice, local and Central Government. For Quantity Surveying the sense of mission evolved from the conflict surrounding the emergence of an occupational status hierarchy in the construction industry of the 19th Century. It was not until the resolutions of issues involved in the blurring of roles between architects, quantity surveyors and builders could the quantity surveyor lay claim to a unique mission. This involved continuous, tactical manouevring by collectivities. However, the emergence of a Surveying 'profession', under the guise of the RICS, meant that the number of specialism within an institutional framework had created a diversity of occupational tasks. Task diversity is also evident within Quantity Surveying. Bennett (1977) and the Mason Report (1982) do not agree on the core constituents of Quantity Surveying. The RICS and IQS suggest that professional tasks differ for the quantity surveyor working in private practice and contracting (IQS 1980, RICS 1978). However, there is agreement that the measuring function underpins the work of the quantity surveyor although the IQS believe the tasks of cost planning, cost control and the preparation of tender documents should fall within the gambit of the Architectural profession. The RICS, on the other hand, have suggested that not only do these tasks form an integral part of the Quantity Surveying function but they should also be used to expand the role into other domains..

The importance of the occupational task is related to the methodology and techniques of an occupation. The measurement function and preparation of tender documentation are not unique to Quantity Surveying. The Monopolies and Mergers Commission (HMSO 1977) have noted that civil, mechanical and electrical engineers also offer these services. Furthermore, the contractual element, within the tendering process, brings the quantity surveyor into a close proximity with the legal profession. It can be concluded, therefore, that many of the techniques used by quantity surveyors are not unique to the occupation. The existence of task diversity also has implications for the relationship with clients. The relationship between

clients and private practice, government and contractors quantity surveyors is fundamentally different. The private practice and government quantity surveyor act in an advisory capacity on behalf of the client. The contractors quantity surveyor is separated by a gulf caused by the tendering procedure itself. It is only with the emergence of alternative tendering arrangements, such as management contracting and design and build, has the contractor had the opportunity to become a member of the client's design team. As a consequence, it can be assumed that those working in contracting will have a fundamentally different view of clients than quantity surveyors working in other organisational settings.

The remaining three components of Bucher and Strauss's model, colleagueship, unity of interest and public relations will be dealt with together. The case has been argued that segments exist not only within the Surveying profession but also within Quantity Surveying. The myth of colleagueship and mutual interests is evident in the Surveying profession. First, dissention within the RICS has broken out on several occasions. It has directly resulted in the formation of the QSA and IQS. The existence of other professional institutes to represent the interests of quantity surveyors is also a witness to this. Second, the IQS and RICS have admitted they have had differing objectives. The former to foster the development of Quantity Surveying and the latter to unify the Surveying profession. Third, on several occasions the RICS has attempted to establish a two tier profession and graduate entry. This has been resisted by the membership. Fourth, the IQS were blocked from amalgamation in 1976 by the emergence of pressure groups to oppose the move. Fifth, the RICS is the dominant professional institute and as such it claims to speak with a unified voice for the Surveying profession and Quantity Surveying in particular. However, non-corporate members are not barred from practice. This dilemma is evident with graduates who may be able but unwilling to join because they feel the institution does not represent their views and aspirations. Lastly,

two main power groups have emerged within the RICS after the amalgamation with the IQS. These are the quantity surveyors and the general practice surveyors. As such it can be expected that power struggles behind the unified front will be more probable in the future.

To summarise, the process model of Bucher and Strauss (1961) proposed that the occupation of Quantity Surveying has a diversity of interests, tasks and techniques. It offers services which are not unique to themselves although officials in the IQS and RICS agree that the measuring function underpins the work of the quantity surveyor.

4. Models of occupational authority, power and control.

Haga's (1975) cruciality mystique model when applied to Quantity Surveying has as its starting point the fact that <u>significant others</u> for the occupation are, in the main, complex organisational systems. The level of sophistication will play an important part in the extent to which the client organisation will (i) be advised by in-house professionals (ii) be advised by an externally appointed architect and (iii) approach and appoint an external quantity surveyor. In cases (i) and (ii) the quantity surveyor is in a position of low cruciality and mystique whereas in case (iii) he is in a position of high cruciality and low mystique since invariably the client organisation will be advised by an architect who knows of the duties performed by the quantity surveyor. The model does not apply to those quantity surveyors working in contracting. For them, it is the organisational framework which provided the service to the client not the occupational function per se. The main criticism that can be levelled at Haga's (1975) model, and this has become in its application to the specific, is that it only relates to private practice and is unable to encompass functional variations in other types of organisational setting. On balance, therefore, Quantity Surveying can be located in, at best, the high cruciality/low mystique or, at worst, the low cruciality/low mystique sectors of the matrix (p.128). As a consequence, depending on the

organisational framework prevailing, Quantity Surveying does not have complete occupational authority and subsequent power over the client.

This fact is also supported by Gordon and Ross's (1962) model which can operate at the occupational and the individual levels. Using the arguments mentioned above the model suggests that, in many instances, the client may be in a position to supply and perform a service superior to that of the practitioner in private practice if he so chooses and in-house staff are available. NEDO (1983) has indicated that in successfully run projects the client organisation has been prepared to input managerial expertise. Furthermore, full authority and responsibility for performing the service may not pass to the private practice surveyor since the client may be in a position to have equal if not superior knowledge (The pre-requisites for professional status).

It can be argued that in-house advisors may well determine, in part, the manner in which client needs will be catered for. Gordon and Ross also indicate that the professional is duty bound to continue acquiring knowledge in order that the client can have all possible alternatives presented. Documentary evidence, cited previously, noted that the Quantity Surveying specialism is not committed to research or teaching and, although supporting CPD in principle, the membership have considered any aspect of compulsory learning as a poor reflection on their integrity. On balance, therefore, the members of the occupation may be willing to conduct self-learning, within the bounds of organisational practices, but they are not concerned with the generation and teaching of knowledge. Further alternatives may well remain undiscovered (the continuing characteristics of professional status).

Finally, Gordon and Ross discuss the implications of performance evaluation. From a client perspective, the evaluation of performance will depend again on the level of sophistication. Evaluation strategies may,

therefore, vary for the naive and sophisticated client. Furthermore, clients may only approach the construction industry once or even on an intermittent basis. The sophisticated client is likely to have a programme of construction, reconstruction or maintenance and will be in a position to critically appraise the performance of professionals. The naive client is likely to be a one-off or intermittent client and will be in a weaker position to assess performance over time. Therefore, the latter is likely to approach other client bodies with more experience to gain an impression of the performance of professionals. Whichever the approach adopted, the client is in a position to have some degree of choice over the type of Quantity Surveying organisation that will be approached (the evaluative characteristics of professional status).

At the individual level Gordon and Ross, in their more elaborate model, provide a framework for viewing the different power positions within the organisational role structure. They isolate three roles within which the professional can be found, namely, the artisan-master, protege-patron and professional roles. Each has different implications for the individual.

The neo-Weberian perspective indicates Quantity Surveying is attempting to use the closure principle to control market forces. However, a number of points must be stressed in order to place this in the correct context. First, Quantity Surveying is unable to operate a complete closure principle because graduates, technicians and the unqualified are able to practice and are hired by organisations to perform normal Quantity Surveying functions without being a member of the professional associations. Second, subject to the foregoing statement, the professional associations have used the structural components of professionalisation to differentiate the qualified from the unqualified. The attitudinal component of professionalism has been used with considerable frequency in the rhetoric of the professional associations. Furthermore, in an empirical investigation of quantity surveyors attitudes, Coates (1977)

found that members joined a professional association to gain client confidence.

The Marxist model takes as its starting point the fact the Quantity Surveying is a profession. This is, at the present time, conjectural. However, when placed within a broader social framework Quantity Surveying is an occupation which provides a service to organisations that are producing, hoarding and directing the flow of capital. Furthermore, in terms of the social structure, qualified quantity surveyors are classified as Social Class 2 within the over-all social hierarchy and are, therefore, within the middle class wage earners of society. However, documentary evidence, presented earlier, indicates that in terms of recruitment the occupation is not attracting the more academically qualified individuals. This would suggest a number of possible alternatives in terms of the social distribution of recruits. First, recruits of a poorer academic standard were unable to obtain sufficient academic qualifications at school because of either lack of ability or lack of opportunity. Second, they choose to leave school early to become wage earners. Third, they were individuals who had chosen Quantity Surveying as a second or lower option occupation due to an inability to meet the standards required of the more prestigeous occupations. Fourth, these individuals are late developers and their academic ability has surfaced once they are within the occupational framework of society. This position has received some support from data collected by Coates (1977). Points 1 and 2 could suggest that, in broad classificatory terms, recruits may be from the lower social structure of society. Coates (1977) in his data classified recruits into those from manual, intellectual and medial backgrounds and found this had an association with time taken to qualify. Point 3 could suggest that individuals may be from the higher social strata but have failed to enter the more socially prestigeous occupations and have opted for 'second best'. The fourth point may be dirficult to justify on social grounds and is explainable more in terms of, perhaps,

personality. However, within a Marxist perspective, this would suggest that Quantity Surveying, although on the surface supportive of the capitalist class structure, has the possibility, within its social composition, of offering opportunities for a degree of social mobility that may otherwise be denied those from the lower strata of society.

In summary, the models of occupational authority, power and control indicate that the level of client sophistication and the presence of an architect to advise the more naive clients has important implications for the structuring of the authority relationship between the client and the Quantity Surveying practitioner. This will have a subsequent effect on the degree of power that can be exercised in either direction.

5. Johnson's (1972) model of occupational control.

This model, unlike that of Haga (1975), acknowledges that professionalism is only one form of occupational control. However, its one major weakness is its highly theoretical conceptualisation. Its usefulness lies in its ability to provide a broad framework within which to analyse the alternative forms of occupational control in Quantity Surveying. Table 21 sets out findings from literary evidence on characteristics possessed by Quantity Surveying. Documentary evidence on Quantity Surveying has been supplemented by evidence from the Architectural professional which operates within a very similar organisational framework.

The information presented in the Table, when compared with descriptions of each of the three forms of occupational control, strongly supports the conclusion that Quantity Surveying operates under a system of patronage, rather than under a system of professionalism. However, a number of issues still remain to be resolved. First, in the smaller practices, especially the one-man or two-man firms, it is highly likely that individual customers will be encountered. Second, there is a continuum and diversity of client sizes and types. It is highly likely,

TABLE 21 The Essential Characteristics of Quantity Surveying in Private Practice

CLIENTS	Clients are organisational complexes and not individuals. They are diverse, vary in size from small family businesses to large corporate bodies, both in the public and private sectors. They become economically more powerful than surveying practices as client size increases. They will be advised by architects in the majority of cases. The larger corporate bodies will usually have their own in-house staff of Quantity Surveying and Architectural staff. THEREFORE client bodies will be in a position to define their own needs before meeting private practice quantity surveyors.
PRACTICE	Larger practices are usually appointed direct by corporate bodies. They also tend to receive the highest proportion of large contracts. The smaller practices tend to be involved in non-mainstream Quantity Surveying activities and have workload problems. Workloads will probably come either from repeat commissions or by referral. Senior quantity surveyors are more involved with clients than junior surveyors. Practice is practical and based on experience with little theoretical foundation. Occupational structuring has moved towards distinctions between professionals and technicians. THEREFORE client bodies are in a relative position of power in comparison to those in occupational practice.
EDUCATION, TRAINING & RESEARCH	There is a preference, in the occupation, for part-time routes to qualification and for those with technical qualifications or who have passed through the full gambit of institutional examinations. Employers are, however, reluctant to grant day release facilities. Articled pupilage has been favoured in the past but this has declined in popularity. The emphasis for training is heavily biased towards 'on the job' training with supplementary education by correspondence course. The development of full time education and research has been slow. The occupation has been criticised for not being education conscious, lacking a commitment to research and teaching. Empirical evidence (Coates 1977) indicates involvement in local branch activities of the RICS is low. THEREFORE the occupation is strongly founded in practice and experience. Organisational demands from the practice setting restrict the educational level of the occupation, with an emphasis on practical techniques rather than the generation of knowledge. Furthermore, involvement in occupation wide activities tends to be minimal.

as with the Architectural profession, that practices will specialise in building types, albeit involuntarily. Third, there is again classification problems with those quantity surveyors working within contracting organisatins. Fourth, those quantity surveyors working within Government and private sector client organisations represent the 'house-men' referred to by Johnson. Fifth, Johnson notes that the occupational elites are from similar social groupings as those working within the elite of the corporate patron. At the present time this cannot be verified. Sixth, the extent to which the partners of the larger practices are managing partners with an allegiance to the organisation rather than the profession cannot be verified at present. Seventh, with reference to the issue of the professional status of Quantity Surveying, Johnson refers to a profession as a form of occupational control. It can be concluded that Quantity Surveying is using those characteristics associated with 'professions' to control the collectivity. The resolution of structural uncertainty and the power distribution favours a client controlled occupation and an ideology more suitable to corporate patronage.

In summary, Quantity Surveying appears to fall closer to Johnson's typology of corporate patronage rather than colleagueship.

Other Perspectives

1. The Professional Role

The measurement function has been seen to underpin the Quantity Surveying function, (see page 76). Measurement is prescribed by the Standard Methods of Measurement and the degree of discretion available to the quantity surveyor is low (Higgins and Jessop 1965). Furthermore, standardised procedures for measurement have made this particular aspect of the occupational role ammenable to computerisation. Measurement has been described as mechanical and routine. Cost planning and cost control have been described as tasks of high discretion and,

therefore, suitable for a claim to professional status (Higgins and Jessop 1965). However, these techniques did not evolve until the post-World War 2 era.

Elliot (1972) has provided a model (p. 90) for understanding the difference between a professional and non-professional role. When placing the measurement function within this framework the following picture emerges,

i) Knowledge is technical.
ii) Tasks are routine.
iii) Decisions are programmed by Standard Methods of Measurement.
iv) The ends to meet client needs have been decided, usually by the architect.
v) The occupational group has some,but perhaps, limited collective identity.
vi) The occupation may be a central life interest but this is open to question.
vii) The occupation has, in previous analyses, been suggested to provide opportunities for class advancement.
viii) Education has been limited,in the past, to professional or technical examinations. The early 1960's saw a change to limited full time higher education.
ix) The role tends to be specific and related to the production of Bills of Quantities.

From this analysis it can be concluded the measurement function is non-professional and could be placed on a par with a technically-based craft skill.

2. Professionalism and Professionalisation

Quantity Surveying has been stated to operate under a system of corporate patronage. Evidence to support this statement can also be suggested from a number of other writers. Thompson (1968) has assumed that professionalism was the only ideology that the Surveying profession could adopt as it evolved into a more cohesive specialist activity. The following quotation is suggestive of his stance. However, within it lies the seeds of corporate patronage, although perhaps not specifically identified

by him,

> "....Professionalism was in the air in the late eighteenth century. ...The growth in the volume and regularity of the demand for services, which encouraged and necessitated specialisation. The gradual change in the character of the demand, which made the customers for the services more anonymous - either public companies and corporations or the somewhat faceless but affluent trading middle classes - thus beginning to sap the dominance of aristocratic patronage, and impelling the professional men towards independence" (p.64).

Furthermore, historically the Quantity Surveying specialism evolved from within the confines of the Architectural profession. Hillier (1979), in his extensive investigation of the current situation facing the Architectural profession, specifically uses the term 'patronage' to refer to clients to the profession. Architecture also has appeared to have evolved from aristocratic patronage into corporate patronage. The close ties between the two occupations would support a conclusion of similar client relationships.

Quantity Surveying provides a service to the corporate business world. Like Architecture, it has become a client controlled occupation. Furthermore, the author contends that this service is essentially one aimed at improving the economic performance and fortunes of the client organisation. Quantity Surveying, therefore, is inextricably linked with the fortunes of the market place and as such provides a business function to a corporate society. It provides a service very similar to that of the accountant. The link with and to the fortunes of corporate organisations must have a considerable influence on the structure of the occupation.

Using Hall's (1969) structural component, Quantity Surveying appears to be fully professionalised. However, with reference to documentary evidence, cited earlier, this statement needs qualification. Carr-Saunders and Wilson (1933) have concluded that where a technique becomes specialised the rise of a profession is inevitable. Harries-Jenkins (1970), on the other hand, has suggested that specialisation often becomes equated with professionalisation. This implies that although perhaps connected

they may be essentially different aspects of the division of labour. Long periods of training may be required for competence in the skilful practice of a technique. Furthermore, competence may well be tested in the application of the technique. However, if Harries-Jenkins is correct then similar characteristics may be found when comparing those occupations that are professionalised and those that are specialised.

Harries-Jenkins (1970) concluded the educational processes among occupations are so complex as to make any statements about the extent of professionalisation extremely difficult. He has suggested that at the extremities a high level of professionalisation is associated with those occupations having exclusive graduate entry. Quantity Surveying falls closer to Harries-Jenkins second proposition that a low level of professionalisation is associated with occupations having non-graduate entry (or a multi-portal system of entry in the terminology of Carr-Saunders and Wilson 1933).

The issues of recruitment and status are closely allied to the educational processes within professionalisation (Carr-Saunders and Wilson 1933). Documentary and empirical evidence has already suggested that Quantity Surveying lacks the esteem of other professions and has recruited individuals of a lower academic standard than was desirable. By implication this would suggest that the more academically able recruits do not consider it has the prestige of the higher status occupations. It would be unlikely, using the work of Portwood and Fielding (1981), to attract the more academically qualified from the middle to upper strata of society and, as a consequence, not have access to elite power groupings within the social structure.

In summary, further evidence has been offered to support the conclusion that Quantity Surveying is operating under a system of corporate patronage. This has come from the occupations close ties with the Architectural profession. It has also been suggested that Quantity Surveying provides a business function to corporate organisations in a manner very similar to Accountancy.

3. The Knowledge and Power Base

The knowledge base of a profession provides it with a source of power even if it is unstable. The crucial point is that it rests on expertise in an area of uncertainty (Blau and Scott 1963, Elliot 1972). It has been argued that Quantity Surveyors earn their 'bread and butter' from the production of Bills of Quantities and settlement of Final Accounts. These rest on routinised 'Standard Methods of Measurement'. Documentary evidence has been reported, from RICS and IQS sources, that indicates the Quantity Surveying role may be expanding into other areas.

It would appear that quantity surveyors are following a very similar path to Montagna's (1968) CPA's who expanded into new areas of uncertainty by undertaking financial management and project control. The Quantity surveyors working in contracting are already heavily involved in the area of management. However, unlike the CPA's some of the aforementioned areas are practitioner led whilst others are institutionally led. Practitioners, within Quantity Surveying, are expanding into areas of project management and the economic management of projects. Institutionally led expansion covers areas normally associated with the work of other professions such as the Mechanical, Electrical and Civil Engineers, Archicture and to a limited extent Town Planners.

The RICS and IQS have admitted there is an inadequately defined academic and scientific base for the Quantity Surveying discipline. The function of measurement rests predominantly on a knowledge of Building Technology and the ability to transfer information from a two dimensional drawing into a document which can be priced. To the RICS this would form the major part of the technician function. The technologist (or professional) would practice in cost planning, cost control and in the interpretation of the law of contract as applied to the construction industry (although this rests on the knowledge base of the legal profession). Corporate membership of the

professional associations is not a pre-requisite for application of these techniques in the practice setting. Furthermore, unlike Higgins and Jessop (1965) the author questions whether cost planning and cost control rest on a body of theory. These techniques require a data bank of pricing information that is a blend of occupation wide and organisation specific information. The quantity surveyor, as Higgins and Jessop correctly concluded, does have to exercise discretion when advising client and architect alike when using these techniques. However, manipulation of pricing data in order to use a technique does not constitute a body of abstract principles. The author would contend that cost planning and cost control are no more than sophisticated extensions of the measuring function and, like a craft skill, they require the use of discretion in their application. This is in line with the thinking of Harries-Jenkins (1970) who noted that the practice of a skill can be independant of a body of theory. In this instance he indicated that practitioners are craftsmen rather than professionals. Harries-Jenkins concluded that the closer the link between theory and skill the greater the professionalisation.

In summary, the measurement function has become procedur-alised. This started as early as 1775 in Scotland but an agreed Standard Method of Measurement did not fully occur until 1922 (Thompson 1968). If Montagna (1968) is correct, then from 1922 onwards the power base of Quantity Surveying was gradually being eroded. It is quite possible that the occupation was held in high esteem before this date but codification has gradually denigrated the measurement function to technician status at the present time. Montagna has suggested that once codification has occurred a new impetus will be required for professionalisation. This may well explain attempts at role expansion by practitioners and institutions alike.

Conclusions on Quantity Surveying at the Occupational Level

Quantity Surveying is a higher grade, non-manual, complex occupation. It is fully professionalised on Hall's (1969) structural component of professionalisation and expresses the attitudinal components of professionalism. However, it operates under a system of corporate patronage that may not be fully developed yet. As an occupation, it lacks structural power in society and does not have the prestige and status of other occupations.

Much of the work is proceduralised and capable of being undertaken by suitably trained technicians. The measurement function is on the level of a craft skill. The 'technologist' draws on knowledge bases from other occupations and professions. The main techniques used by the technologist, namely, cost planning and cost control, have no unique theoretical underpinning. They can be practiced independent of any body of theory. It is an occupation which provides an essentially business service to corporate capitalism and offers considerable opportunity for occupational mobility for those from the lower social strata. The occupation is currently passing through a transitional stage as it attempts to move into new areas of uncertainty and increase its diminishing power base.

THE PARADIGM

The exploratory nature of the present study prevents firm hypotheses from being stated due to high order interactive effects and a lack of theoretical background in certain areas. The paradigm for the present study will be stated in a series of propositions that will be encompassed within a diagrammatic representation. (Figure 27).

Family influences

For qualified quantity surveyors;

Proposition 1 Social class differences exist in the strength of n-Ach.

Proposition 2 Social class differences exist in the interpersonal orientation of individuals.

Proposition 3 Educational attainment varies according to social class differences.

Proposition 4 The strength of need for achievement varies according to birth order.

Proposition 5 The interpersonal orientation of individuals differs according to birth order.

Proposition 6 There is an association between n-Ach and educational attainment.

Occupational structuring - Membership of RICS versus IQS

For qualified quantity surveyors;

Proposition 7 Institutional differences exist in the need for achievement.

Proposition 8 Institutional differences exist in the interpersonal orientation of individuals.

Proposition 9 Different social classes have been attracted to different institutions.

Proposition 10 Members of each institution exhibit differences in professionalism.

Sector of employment - Private practice, Government and Contracting

For qualified quantity surveyors;

Proposition 11 The strength of n-Ach varies according to sector of employment

Proposition 12 The interpersonal orientation of individuals varies according to sector of employment.

Proposition 13 The degree of professionalism varies according to sector of employment.

Proposition 14 The structuring of role positions varies with sector of employment.

Proposition 15 The nature of the task performed by individuals varies with sector of employment.

Hierarchical position

For qualified quantity surveyors;

Proposition 16 The strength of need for achievement varies according to hierachical position.

Proposition 17 The interpersonal orientation of individuals varies according to hierarchical position.

Proposition 18 The degree of professionalism varies according to organisational rank.

Proposition 19 There is an association between the structuring of role positions and hierarchical rank.

Proposition 20 The perceptions of achievement climate varies according to organisational rank.

Proposition 21 The nature of task activity varies with hierarchical rank.

Structural effects

For qualified quantity surveyors;

Proposition 22 The degree of professionalism exhibited by individuals varies according to the structuring of role positions.

Proposition 23 The achievement climate perceived by the individual is affected by the structuring of role positions.

Proposition 24 The strength of need for achievement is affected by the degree of structuring on role positions.

Proposition 25 The interpersonal orientation of individuals is affected by organisational role structuring.

The effect of task

For qualified quantity surveyors;

Proposition 26 The nature of the task has an effect on the degree of professionalism exhibited by the individual.

Proposition 27 Need for achievement is affected by the type of task undertaken by an individual.

Proposition 28 The nature of the task affects the interpersonal orientation of an individual.

The effects of achievement climate

For qualified quantity surveyors;

Proposition 29 The degree of professionalism exhibited by individuals is affected by the achievement climate perceived in a role position.

Proposition 30 There is an association between strength of n-Ach and achievement climate perceived in a role position.

Proposition 31 The interpersonal orientation of an individual is affected by the achievement climate perceived in a role position.

Organisational size

Proposition 32 For qualified quantity surveyors, task diversity is affected by organisational size.

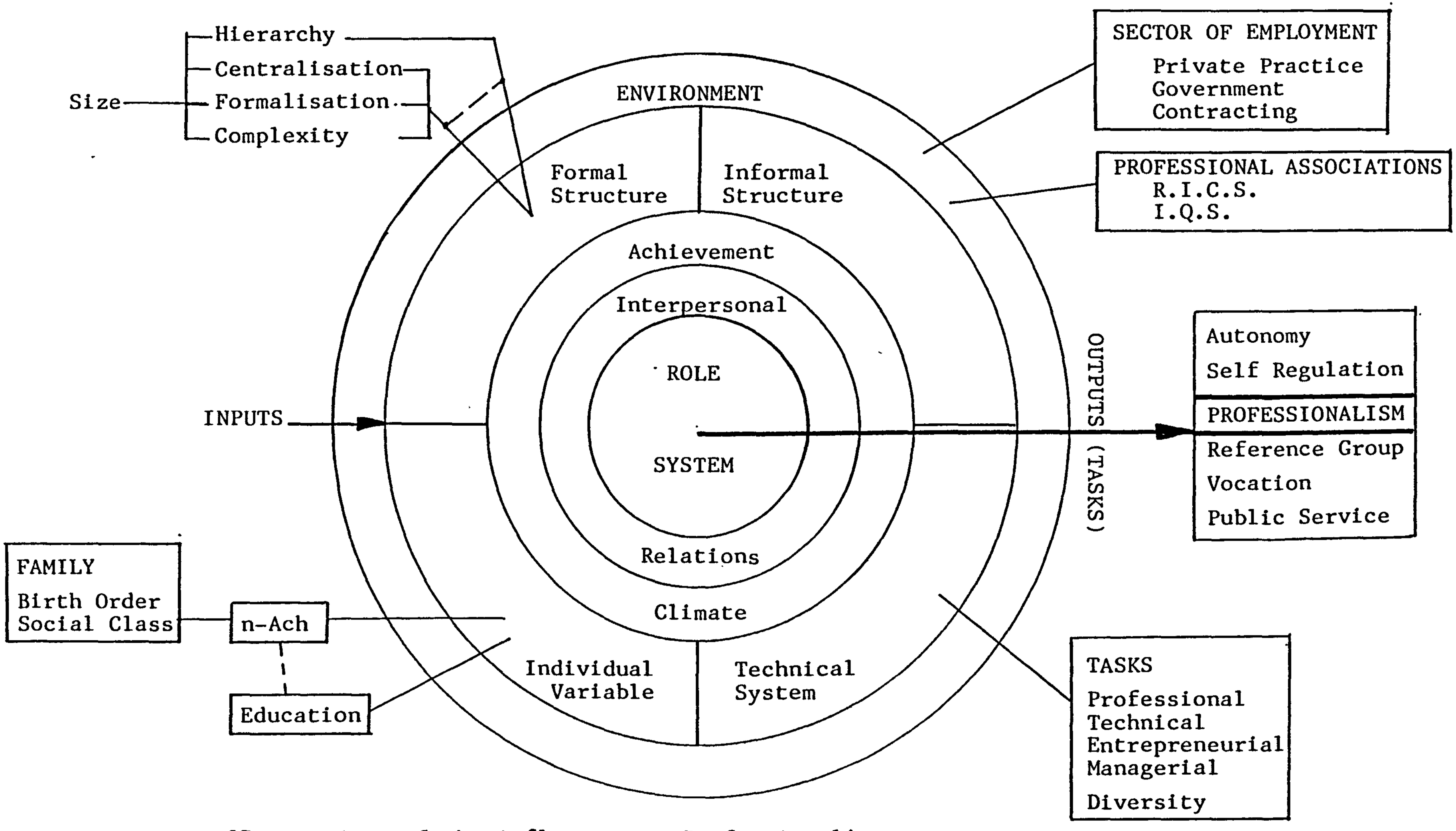


Figure 27 Paradigm of the influences on Professionalism

Source: Adapted from Hunt (1972)

CHAPTER 7

METHODOLOGY

INTRODUCTION

The research design used in the present study was:-

i) To survey a random sample of qualified quantity surveyors from a known population currently practising in the United Kingdom (1981/82).

ii) To use structured and scaled standardised questionnaires to extract information on major variables isolated in the research paradigm (Chapter 6).

iii) To analyse questionnaire responses and verify or reject the propositions put forward in the research paradigm.

THE SAMPLE

There are approximately 18,000 qualified quantity surveyors registered with the RICS (and IQS pre 1982). NEDO (1978) reports approximately 14,000 practicing in the UK. The sampling frame consisted of a random sample of qualified quantity surveyors employed in the United Kingdom (total N = 1000). A simple 1 in 10 count was made from the 1980-81 yearbook of the RICS and IQS. Technically, the sampling frame was produced without replacement and as such does not represent a true random sample. Blalock (1979) referred to this type of sampling as 'systematic sampling'. In accordance with his suggestion the first name was selected with reference to a set of random numbers. Modifications were made to the sampling frame where,

i) Members were employed outside the United Kingdom.

ii) Members were not registered as part of the Quantity Surveying division of the RICS (this problem did not arise with the IQS).

iii) Where joint membership of the IQS and RICS occurred and names were duplicated.

In each case the name was ignored and the simple count re-established. These procedures may have introduced a small but unimportant bias into the sampling frame.

To allow for an adequate usable sample for statistical analysis (approximately 300), the sampling frame had been inflated by a factor of 3. This was to take account of pilot study evidence suggesting an expected response ratio in the order of 35%.

DATA COLLECTION

The choice of approach

A review of the alternative data gathering techniques available revealed that the questionnaire survey was the most appropriate method for the following reasons (Smith 1975),

i) Survey methods were likely to be the only method of retrieving information about the past histories of individuals especially if the data is sensitive or considered private to an individual.

ii) The questionnaire survey is a good technique for the exploration of attitudes,values, beliefs and motives. Furthermore, generalisability is one of the strongest points of the survey method.

iii) Data collection by survey is efficient as it can be structured in order to obtain specific information from a wide population.

iv) The data is standardised in that respondents are assumed to react to the same stimulii.

v) As a form of data collection in social research, survey methods are comparitively cheap. They also allow the respondent to answer questions at his own convenience.

vi) Because of its exploratory nature, the present study required a large sample size to allow the complexities of Quantity Surveying to be explored.

The possibility of supplementary interviews was considered but rejected for the following reasons,

i) Access to the total sample of qualified quantity surveyors was available. The weight of numbers would have excluded the possibility of interview.

ii) The complexity of the profession, in terms of organisational work settings, would have made any generalisable validation,by interview, impossible.

Kerlinger (1973) has heavily criticised survey research as a method of data collection because of poor response rates, the general nature of questions and the inability, on the part of the research, to verify information provided.

In order to overcome these deficiencies, the following procedures were adopted (Berdie 1973, Dillman and Frey 1974, Etzel and Walker 1974, Futrell and Lamb 1981, Kanuk and Berenson 1975, Sinclair 1975).

1. Pilot Surveys

The procedure suggested by Sinclair (1975) was utilised for piloting.

i) Preliminary questionnaires and covering letter were given to academic colleagues for comment. They were qualified quantity surveyors who had experience of the types of organisations under study.

ii) The revised questionnaire was distributed to post-graduate quantity surveyors who were undergoing mid-career training on a Master course (N = 20).

iii) The final questionnaire was piloted on a small sample of respondents currently practicing as quantity surveyors (N = 60).

The cycle for piloting was repeated until ambiguities were removed from question wording. A reliability and factor analysis of standardised questionnaires was also undertaken to determine their acceptability.

2. The main survey

The following procedures were used to distribute the final questionnaire and covering letter to respondents,

i) The covering letter was mimeographed on Heriot Watt University departmental headed note paper and signed by the head of department. A copy of the letter is to be found in Appendix 2 .

ii) The questionnaire was enclosed in a coloured, bound and titled booklet with the university crest and departmental title clearly printed on the front cover. A copy of the document is to be found in Appendix 3 .

iii) A stamped, addressed envelope was included with the questionnaire.

iv) Two follow up proceudres were used; a postcard reminder and a second questionnaire. Research evidence

is inconclusive on the exact nature of follow up procedures. Kanuk and Berenson (1975) considered the types of follow up proceudres used are a trade off between cost and increased response rate. Etzel and Walker (1974) concluded that a follow up letter without a duplicate questionnaire produced a maximum response rate. Futrell and Lamb (1981) concluded this was insufficient and indicated that at least one follow up with questionnaires was required. The present study utilised a postcard reminder followed by a second mailing of duplicate questionnaire and covering letter. Pilot studies had indicated that with one postcard reminder a response rate of approximately 35% could be expected. Copies of the postcard follow up can be found in Appendix 2 .

v) In accordance with research evidence, follow up procedures were instigated after a cut off point of 17 days from initial mailing (Williams and Wechsler 1970).

vi) Respondents were promised feedback of results.

Based on research evidence, the following procedures were not instigated (Kanuk and Berenson 1975),

i) No advanced contact was made. The cost of preliminary contact was offset against extending follow up procedures.

ii) There was no clear cut advantage for using personalised signatures as opposed to mimeographed copies.

iii) There was no clear cut advantage for a guarantee of anonymity although confidentiality was guaranteed.

iv) No deadline date for questionnaire returns was set. The questionnaire was a lengthy document and respondents were offered the convenience of their own time to complete their answers.

The issue of questionnaire length was of some concern. Research evidence indicated no correlation between questionnaire length and lack of response (Berdie 1973, Kanuk and Berenson 1975). However, respondent fatigue could have proved

problematic. The pilot study had indicated respondents often had to search for information and a number had commented on the length of the document in terms of response time. The covering letter indicated that the questionnaire had been structured in discreet sections to allow respondents to vary the amount of time spent in answering the document.

Questionnaire design and structure (see Figure 28)

A number of issues were considered important for questionnaire design.

i) The format of the document and the sensitivity of questions
ii) The structuring of questions
iii) The scaling of items used
iv) Cross validation of data.

Each of these issues will be discussed in turn.

1. The format of the document and the sensitivity of questions

The document was essentially designed in two parts. The first section dealt with personal history and career development. The second section contained standardised questionnaires (Aiken and Hage 1967, Fineman 1975 a and b, Hall 1968, 1969, Laforge and Suczek 1955, Snizek 1972). The first section was structured with 'tame' questions such as date of birth, sex, nationality and early school career as 'lead-in' questions. The more sensitive issues such as; father's occupation, marital status and income, appeared in the middle portion of the personal history questionnaire, sandwiched between less contentious questions.

The standardised questionnaires were randomised in their order of appearance to negate researcher bias.

2. The structuring of questions.

Sinclair (1975) concluded that the first decision to be made in the design of a questionnaire is the issue of open or closed questions. For the present study this concerned, in the main, the personal and occupational history section. Pilot studies had indicated the problems associated with closed questions because of sample heterogeneity. The final document, required the respondent to

QUESTIONNAIRE STRUCTURE

DEMOGRAPHIC VARIABLES	EDUCATION	CAREER	ORGANISATION	PERSONALITY
SEX	SECONDARY EDUC.	AGE ON ENTERING EMPLOYMENT	POSITION IN FIRM	INTERPERSONAL*
AGE	ROUTE TO QUALIFY	CAREER SPAN	SPAN OF CONTROL	NEED FOR ACHIEVEMENT*
NATIONALITY	TECHNICAL QUALS.	PRESENT EMPLOY	PROJECT & POSITION RESPONSIBILITY	PROFESSIONALISM*
INCOME	DEGREE OR DIPLOMA	NO: CHANGES IN EMPLOYMENT	ORGANISATIONAL & PROJECT PROBLEMS	
FATHER'S OCCUPATION DURING SCHOOL YEARS	RICS/IQS WRITTEN EXAMS	AREAS COVERED IN CAREER	TASK RESPONSIBILITY	
BIRTH ORDER	POST QUALIFYING EDUCATION	OVERSEAS EMPLOY	ORGANISATIONAL DIAGRAM	
MARITAL STATUS	C.P.D.		NO: QUALIFIED Q.S.	
			NO: UNQUALIFIED Q.S.	
			OFFICE MANAGEMENT	
			TOTAL SIZE OF U.K. ORGANISATION	
			CENTRALISATION*	
			FORMALISATION*	
			ORGANISATIONAL CLIMATE*	

Variables marked with * are measured by standard questionnaire

Figure 28 Questionnaire Structure.

answer open questions. A coding frame was subsequently used once the total number of analysable questionnaires had been obtained.

3. The scaling of items

In general the standardised questions were to be answered on either a six or seven point scale, Likert type scales or by placing a simple tick against the item that applied. However, Fineman's (1975a) Work Preference Questionnaire has a forced choice format. The forced choice format is designed to control item desirability, response set and social desirability (Kerlinger 1973, Nunnally 1978). It makes the assumption that items are equally matched in terms of frequency of response and preference. However, forced choice items fail to take account of the varying degree of applicability for a respondent. Pilot study work indicated that respondents objected to the forced choice format. In order to overcome this problem the Yes/No choice of the original questionnaire was extended to discriminate across a six point scale. On analysing the data question responses were reclassified into dichotomies by grouping item responses 1 to 3 as Yes and 4 to 6 as No. Subsequent analysis of reliabilities, using both types of response, revealed no contamination effects (Male 1984, p.299).

4. Cross validation of data

A number of questions in the document were included essentially as variations on a theme. In essence they are redundant but have the advantage of providing a check on respondents answers. Questions tapping the educational processes, career progression and questions related to organisational structuring are examples of the foregoing (Q's 4,6 to 12, 21, 22, 26, 29, 30).

Choice of standardised questionnaire

Standardised questionnaires were used to measure major variables, in preference to developing measures specifically for the study, primarily because the author lacked the expertise to undertake such a task.

Standardised questionnaires were used to measure,

- centralisation and formalisation of organisational structure.
- interpersonal orientation.
- achievement oriented climate.
- need for achievement.
- professionalism.

The choice of questionnaire depended on two main criteria. These were,

i) The exploratory nature of the study necessitated using questionnaires that were short, to the point and easily adjusted to the dictates of the Quantity Surveying profession. Qualified quantity surveyors have heavy workloads and their co-operation was paramount for the success of the study. Therefore, questions had to appear relevant to every day practice and require the minimum amount of encroachment on work schedules (Fineman 1975a, b).

ii) Wherever possible questionnaires were selected that had been used widely in the sociological and managerial literature. This facilitated grounding the present study in a well-documented theoretical framework.

Each of the questionnaires used in the document will be discussed below.

1. Centralisation and formalisation (Questionnaire pps 7 and 8)

These two components of organisational structure were measured using those instruments developed and used in research studies by Aiken and Hage (1966), Hage (1965) and Hage and Aiken (1967). These instruments were, in turn, adapted from Hall's bureaucratisation scale (Hall 1962-63, 1968, 1969, 1977). As such, the Aiken and Hage measuring instruments have, in various guises, contributed to a considerable body of research and theory on organisational functioning. The scales used were those presented by Miller (1977). Miller (1977) presented no information on reliabilities. Dewar et al (1980) undertook reliability

analyses of Aiken and Hage's scales at the time the final document was being constructed. Dewar et al's results, on reliability, suggested the scales performed within the limits suggested by Nunnally (1978). However, they criticised the adequacy of scale contents. The author was unaware, at the time, of any suitable alternatives.

2. Interpersonal orientation.

The Interpersonal Check List (ICL) was developed by Laforge and Suczek (1955) to measure a number of the variables defined by Leary's (1957) Interpersonal Personality System. Laforge and Suczek have noted that the ICL can be used as a research tool without specific reference to the underlying theory. The instrument was chosen, therefore, for its development from a body of theory on interpersonal behaviour but at the same time having the flexibility to be used without the constraints that a systemmatic theory can impose on measuring instruments. The ICL also has the advantage of being simple and quick to administer.

The ICL classification system is made up of 16 interpersonal variables arranged on a circular continuum (see p. 226). Those variables adjacent to each other on the perimeter are positively correlated, and negatively correlated with those on the opposite side. There is an intensity dimension built into the system with those variables closer to the circumference of the circle considered more deviant (Laforge and Suczek 1955, Leary and Coffey 1955). Scores on the traits can be summarised in terms of two major dimensions, namely, dominance-submissiveness on the vertical axis and affiliation-hostility on the horizontal axis (Laforge and Suczek 1955). The ICL can be more fully analysed with the inclusion of two other dimensions, competitiveness and responsibility (Leary reported in Gynther et al 1962). The present study utilises the four dimensions in the analysis of results since the the literature survey indicates interpersonal competitiveness and responsibility have important implications for

the varying organisational settings within which quantity surveyors work. Furthermore, the dimensions of dominance and affiliation specifically encompass important dimensions highlighted within the theoretical framework provided by Boyatzis (1973), Mehrabian and Russell (1974), McClelland (1967, 1970) for the analysis of interpersonal behaviour and n-Ach.

The ICL has received considerable investigation concerning its factor structure. Table 52 in Appendix 1 sets out the results on the number of factors extracted in various studies. They represent studies using the ICL to tap interpersonal behaviour at Level 2 in the theoretical schema ie. The Conscious level or the individual's awareness of his/her own interpersonal world. The present study also taps interpersonal behaviour at Level 2.

Further support for the usefulness of the ICL in the study of quantity surveyors comes from Armstrong (1958) and Laforge and Suczek (1955). Armstrong concluded that regardless of the population used (in his study 'normal' and alcoholics N = 50 respectively) and regardless of the ratings used (ie. self, mother, father etc), the ICL showed highly significant internal consistency. Table 51 in Appendix 1 sets out Armstrong's findings using Kuder Richardson estimates of reliability. However, a word of caution is necessary. Armstrong has summated items across the total test and not for each of the octants making up the test. He has made the assumption that the total test measures the same 'thing' ie. is homogeneous. The existence of octants, in some cases positively and negatively correlated, would suggest that the assumption may be questionnable. Armstrong does however, use this fact to argue homogeneity. The current research whilst being aware of Armstrong's findings, has been designed to measure octant reliabilities.

Laforge and Suczek (1955) in their development of the test have noted that the ICL has a test-retest reliability

averaging 0.78 with a range of 0.73 to 0.83. They suggest that the ICL has, therefore, sufficient stability to be useful in personality research.

3. Achievement oriented climate and need for achievement (Questionnaire pps 12-17)

These two scales will be dealt with together since Fineman (1975a, 1975b) has designed both questionnaires.

a)Need for achievement (Questionnaire pps 15-17)

The Work Preference Questionnaire is a newly designed questionnaire to overcome many of the deficiencies that Fineman had highlighted in the measurement of need for achievement (Fineman 1975a). In the main, these concerned low inter-correlations between n-Ach measures, the conscious versus unconscious measurement debate and the lack of a suitable questionnaire measure that was specifically designed for and validated on a managerial population. The WPQ was chosen for the present study for the following reasons,

i) It was constructed, tested and validated on British managerial population.

ii) The instrument has an internal consistency of 0.68 using the KR20 formula. Nunnally (1978) suggested that reliabilities of 0.50 to 0.70 are satisfactory for the early stages of research or using a newly hypothesised construct. For basic research he suggested levels of 0.80. The WPQ was therefore, judged to be satisfactory.

iii) The construct validity of the WPQ has been established by Fineman (1975a). He reports a correlation of 0.42 ($p \leqslant .01$) with Ghiselli's (1971) Self Description Inventory, which contains a measure of n-Ach. Furthermore, the WPQ correlates 0.21 ($p \leqslant .05$) with TAT measures of n-Ach. The WPQ appears to overcome the lack of inter-correlation amongst n-Ach measures.

iv) The WPQ has specifically been designed to control for social desirability and faking responses.

v) Fineman reports test-retest correlations of 0.58 ($p \leq .05$) and 0.55 ($p \leq .01$) over a one year period.

vi) The WPQ has shown no association with age or intelligence.

vii) The item pool taps the following areas,

Individual responsibility	Risk-taking
Achievement satisfaction	Task activity
Task variety	n-Ach and n-Aff
Competitiveness	Incentive value of free time
Researching the environment	

These nine areas are all considered relevant to the work of the quantity surveyor in his various organisational roles.

b) The achievement climate (Questionnaire pps 12-13)

The theoretical discussion in Chapter 5 highlighted the importance of the immediate situation facing the individual if the achievement motive is to be activated. In conjunction with the development of the WPQ, Fineman (1975b) developed the Job Climate Questionnaire which is a measure of managerial job climate. The instrument was chosen for the following reasons,

i) It was constructed, tested and validated on a British managerial population.

ii) It relates specifically to the achievement climate of an organisation and not to the nebulous construct of organisational climate. The present study wished to restrict environmental effects to achievement motivation cues. Fineman's (1975b) JCL instrument is the only one presently available that taps this construct at the level of the individual role position.

iii) The alpha coefficient of internal consistency is 0.88 which, using Nunnally's (1978) criterion of a minimum of 0.5 to 0.7, is more than adequate.

iv) Fineman reported the concurrent validity of the JCL, using the Business Organisation Climate Index (Payne and Phesey 1971), as first, <u>management concern for employee involvement</u> ($r = 0.79, p \leq .01$)

reflecting with the degree of feedback and communication provided by management. Second, <u>open mindedness</u> r = 0.61, p ⩽ .01, reflecting the permitted degree of individualism in the organisation and third, <u>job challenge</u> (r = 0.60, p ⩽ .01), reflecting the degree of achievement recognition and challenge in the job. Fineman also reported a negative correlation with degree of bureaucracy as measured by Hall's (1962-63) measure of the construct; (r = 0.39, p ⩽ .01). Furthermore, achievement job climate varied according to hierarchical level (p ⩽ .05). These are important in entrepreneurial role behaviour and more especially provide a link between the application of achievement motivation theory to 'professional' role behaviour.

v) Fineman (1975b) reported that the correlation between the WPQ and JCL was non-significant (r = .07)

vi) The JCL, like the WPQ, has high face validity and is, therefore, not likely to antagonise respondents because they consider questions to be trivial or unrealistic.

4. Professionalism (Questionnaire pps 18-19)

Hall (1968, 1969) and Schriesheim (1978) are probably the only two researchers to haveproduced non-occupational specific professionalism scales. Hall has used his own scale in several research studies (Hall 1968, 1969) However, it has been criticised by a number of researchers Schack and Hepler (1979) criticise the scale for confounding items describing self and others. Schreisheim (1978) has criticised it for confounding perceptions, behaviours, occupational characteristics and organisational characteristics. She argued that many items have not been derived from a conceptual definition. However, Hall's (1968, 1969) scale of professionalism (with modifications) was used for the present study for the following reasons,

i) Schreisheim (1978) had produced the only viable alternative scale. However; it has 65 items and would have considerably lengthened an already long

questionnaire. The scale had been developed on a heterogeneous sample of engineers. The scale, at the time, had not been validated on any other sample and the concurrent validity had not been established with reference to other scales of professionalism. The reliabilities of Schriesheim's subscales are good. However, within the context of of the present study Schriesheim's professionalism scale would have required extensive pre-validation prior to the commencement of data collection.

ii) Snizek (1972) has undertaken extensive modifications to Hall's (1968, 1969) professionalism scale. Hall, when originally developing his scale, had operationalised the five theoretical dimensions with a fifty item questionnaire. The five dimensions tapped by the instrument are:-

1. Belief in the Professional Association as a major source of reference.
2. A Belief in Service to the Public.
3. A Belief in Self (peer) Regulation.
4. A Sense of Calling to the Field.
5. A Belief in Personal Autonomy in Decision Making.

The relevance of each of these dimensions to Quantity Surveying has been established in Chapter 6. Snizek undertook a factor and reliability analysis of the original data set as well as a further validation study. Results from both studies suggested the shorter version of the original scale, produced by Snizek's reanalysis, offered a closer empirical fit to the theoretical dimensions. A subsequent reliability analysis of the shortened version indicated that the reliability of the scale had not suffered from extensive modification. Table 22 sets out the comparison in reliabilities between the shortened and original scales. The present study uses Snizek's modifications.

Table22 Reliability Coefficients* Hall's Professionalism Scale
Source: Snizek (1972:112)

Dimensions	Hall Data		Snizek data	
	10 items	5 items	10 items	5 items
Prof. organisation	674	686	620	621
Public Service	676	742	656	640
Self Regulation	694	731	596	699
Vocation	711	703	455	583
Autonomy	776	760	730	738
All Dimensions	860	843	799	783

* Decimal points omitted

DATA ANALYSIS

The following section deals with the choice of statistical procedures adopted for data analysis together with choices for statistical packages and data manipulation.

The choice of statistical procedures and statistical package

The two primary statistical techniques to be used for data analysis were,

i) One way analysis of variance

This was chosen for its simplicity in comparing independent multiple nominal level groups on an ordinal or interval level dependent variable. The method seeks to establish independence among the nominal level groups.

ii) Correlation analysis

This was chosen to highlight the degree of association between variables measured on either ordinal or interval levels of analysis. Multiple regression, as an extension of correlation analysis, was considered but rejected for the following reasons,

a) Hall's professionalism scale, measuring the dependant variable, operates at an ordinal level of measurement (Hall 1968). Multiple regression requires that the dependant variable be at least interval level. This assumption could not be made.

b) In the light of the debate detailed in the section headed 'Parametric versus non-parametric models' notwithstanding the foregoing comment, many of the assumptions underlying multiple regression would have been violated.

iii) Factor analysis

Factor analysis of standardised questionnaires allowed the underlying dimensionality to be explored. The exploration of the factor structure facilitated the extent to which empirical findings correspond to the hypothesised questionnaire structure, determined by the designer. Principal component factor analysis with iterations and varimax rotation was used (Nie et al 1975). Factoring was terminated in accordance with

Kaiser's criterion that eigen values remain greater or equal to one (Nie et al 1975, Nunnally 1978). The assumption of normality is not required for factor analysis (Harman 1976). In the case of the ICL, factor structures were not determined on the basis of items but by octants due to the violation of the rule suggested by Nunnally (1978). He suggested that there should be a minimum of five cases per item in order not to take advantage of chance. Factor reduction of the total item universe was not undertaken for two reasons,

a) The violation of Nunnally's suggestion.
b) Respondents answered a standardised questionnaire in total and not a set of items generated from an hypothetical factor structure. Their response to a standardised test may be different than that produced by an amalgam of different items from a number of tests.

iv) Reliability analysis

Reliability analysis determines the internal consistency of standardised tests and allows their reproducability, across samples, to be established. Coefficient alpha is the normal reliability test used in this form of analysis and essentially estimates the extent of measurement error present in a test.

The Statistical Package for the Social Sciences (Nie et al 1975) was used in data analysis for the following reasons,

i) It is a well tried and tested statistical package.
ii) It is flexible in data manipulation.
iii) The statistical tests to be used in the analysis were all provided in the package.
iv) The package is updated to take account of new developments in statistical analysis.

The following section deals with the choice between parametric or non-parametric statistical models.

Parametric versus non-parametric models

Two important and interrelated issues are involved in the choice between parametric or non-parametric statistical tests.

The first concerns the level of measurement and the second, the assumptions underlying the statistical model used.

1. The level of measurement

Kerlinger (1977) has argued that strictly speaking psychological variables can only be classified as ordinal level variables since they are concerned with the ranking of individuals on an attribute. However, he argued that on pragmatic grounds an interval level of measurement would be acceptable and allow more powerful statistical techniques to become available. Siegel (1956) was less liberal. He believed that behavioural measurement could and should only be classified as ordinal. In this current research judgement was reserved until a preliminary analysis of the assumptions underlying the parametric model had been made.

2. The assumptions underlying the parametric model

The two main assumptions that can easily be tested in the parametric model are those of normality and homoscedacity. An assumption of interval level measurement was initially made. The following tests were then undertaken to establish the validity of the two assumptions,

i) The Kolmogorov-Smirnov one sample test was used to test organisational and psychological variables against a theoretical normal distribution. The assumption of normality was rejected for the total sample.

ii) A preliminary one way ANOVA was undertaken on the same variables. In accordance with Ehrenberg (1975) a test for homogeneity of variance revealed that this assumption, for the populations under study, was rejected. Therefore, in line with Kirk (1968), the assumptions underlying the F test, used in ANOVA, were being violated. The presence of unequal groups suggested that the sensitivity of the F test was also in doubt.

iii) Frequency distributions of all major variables were plotted. Results indicated that in certain instances, especially the centralisation measure, skewed distributions were present.

Based on the foregoing preliminary data analysis many of the assumptions underlying the parametric model were being violated. Major continuous variables were designated as ordinal and non-parametric techniques were used.

Classification of variables

The following variables were classified as,

Nominal, sector of employment, membership of professional institutions

Ordinal, all continuous variables, social class, organisational size, management level, task variables and internal complexity.

Management Level

The varying organisational sizes, degrees of responsibility and task activity affecting the roles of quantity surveyors necessitated the establishment of a yardstick to allow valid comparisons to be made between management levels. Segregation, by managerial level, was achieved as a function of income, raw hierarchical position (obtained from an organisational diagram (Q.26, p.5) and approximate values of projects that an individual was responsible for per annum. The following formula was used to determine an adjusted hierarchical level,

$$\text{Management Score} = \frac{2 \times \text{Income} + \text{Project Value} + \text{Raw Hierarchical Level}}{\text{Weighting } (=4)} \times 100$$

where, Income was scored as those earning below £8000 score = 1
those earning £8001-£14000 score = 2
those earning above £14000 score = 3

Project value was scored on a scale of 1 to 6 (see Table 29,p.307 for distributions).

Raw Hierarchical level was scored on a scale of 1 to 5 (see Appendix 4 for bands).

Managerial level was then allocated according to the following,

Managerial score below 200 classified as lower management
Managerial score 200-300 classified as middle management
Managerial score above 300 classified as top management

Task Variables

Based on evidence produced by the Practice Study (RICS 1974) respondents were questionned on their office responsibilities (Question 25 p.5). Five task variables were created to describe the type of job undertaken by the individual. These were; task variety - a measure of the total task undertaken, Professional tasks - those designated as having a "professional" status, managerial tasks, those having a predominantly co-ordinating or financial base for organisational functioning, Technical task - those designated as having only a technical function and entrepreneurial tasks - those involving the individual in direct contact with the external environment and important for company survival. The four sub-task activities were also expressed as a percentage of task variety to indicate the proportions of each type of task undertaken by an individual in his normal working life

Appendix 5 sets out those task activities composing Professional, managerial, technical and entrepreneurial roles.

Chapter Summary

The methodology for the present study has been discussed. The data collection was undertaken using questionnaire survey techniques. The sample was qualified quantity surveyors from the RICS and IQS (N = 1000). Data analysis proceeded using Kruskal-Wallis one-way analysis of variance and Spearman rank-order correlation analysis. Preliminary investigations of the factor structure and reliability of standard tests was undertaken.

The following chapter presents the results of the analysis.

CHAPTER 8

RESULTS

INTRODUCTION

The following chapter is divided into a number of distinct sections. The structure is as follows,

Section 1 - The sampling frame
Section 2 - The factor analysis of scales
Section 3 - The reliability analysis of scales
Section 4 - A general description of the total sample
Section 5 - The exploration of the paradigm
Section 6 - An evaluation of other findings

THE SAMPLING FRAME

The total sampling frame consisted of qualified quantity surveyors drawn from the RICS and IQS (N = 1000). A response rate of 55% was obtained with a usable response of 45%. At the time of sampling (1981/82) the RICS and IQS had not amalgamated. The analysis of results deals with this situation in two ways. First, an assumption was made that respondents were not members of a unified body and second, that amalgamation had taken place and that the sampling frame consisted of Chartered Quantity Surveyors, all members of the RICS.

THE FACTOR ANALYSIS OF SCALES

The following section deals with the factor analysis of standardised questionnaires used in the survey. A fuller statistical analysis of each of the scales is provided in Appendix 8 .

1. Aiken and Hage's (1967) Formalisation scale.

Three factors were extracted with eigen values greater than one. This does not conform to the hypothesised scale structure suggested by Aiken and Hage. Factor 1 (Job Description or Procedures) accounted for 62.1% of the variance. Factor 2 (labelled by the author, "Discretion/Autonomy") accounted for 20.9% of the variance and Factor 3 (labelled by the author, "Closeness of Supervision") accounted for 17% of the variance.

2. Fineman's Job Climate (1975b) Questionnaire

Five factors were extracted with eigen values greater than one. Factor 1 (concerned with progress or promotion in the organisation) accounted for 73.1% of the variance. Factor 2 (concerned with responsibility and autonomy) accounted for 11% of the variance. Factor 3(concerned with organisational dynamics) accounted for 6.5% of the variance. Factor 4 (concerned with job challenge) accounted for 5.2% of the variance. Factor 5 was difficult to label. It reflected future orientation, training and feedback. Factor 5 accounted for 4.3% of the variance. Fineman reported that the JCL, in a test of concurrent validity, reflected management concern for employee involvement, open-mindedness and job challenge. The factor structure appears more complex than this.

3. Fineman's (1975a) scale of need for achievement

Nine factors were extracted with eigen values greater than one. Table 23 sets out the analysis of the scale. The factor analysis supports Fineman's hypothesised scale structure of nine sub-variables.

4. Snizek's (1972) modifications to Hall's professionalism scale

Six factors were extracted with eigen values greater than one. In general, the factor structure reflects those suggested by Snizek. The only revision that requires mention in this instance is the dimension "Professional Organisation or Association as Major Reference". In the current study this dimension has been split between two factors. Factor 1 (autonomy) accounted for 39.1% of the variance; Factor 2 (Public Service) accounted for 18.5% of the variance; Factor 3 (Sense of Vocation) accounted for 15.5% of the variance; Factor 4 (Peer Regulation) accounted for 13.3% of the variance; Factors 5 and 6 (Professional Association as Reference) accounted for 8.3% and 5.3% of the variance respectively.

Table 23 Factor analysis of Fineman's (1975) n-Ach scale using data from the current research study

Source: Male 1984

Factor	Label	% variance
1	Task activity/primacy	28.6
2	Interpersonal relations	16.9
3	Individual Responsibility	16.0
4	Individual Responsibility	10.5
5	Achievement satisfaction/ incentives	7.8
6	Individual Responsibility	6.6
7	Risk taking	5.0
8	n-Ach/n-Aff & achievement satisfaction	4.6
9	Achievement satisfaction	4.0

5. The Interpersonal Check List (Laforge and Suczek 1955)

Two factors were extracted with eigen values greater than one. Factor 1 (reflecting the affiliative tendencies of interpersonal behaviour) accounted for 77.1% of the variance. Factor 2 (reflecting the dominance, competitive, exploitive side of interpersonal behaviour) accounted for 22.9% of the variance.

SCALE RELIABILITY ANALYSIS

The results of the reliability analyses are given in Tables 24 and 25. Fineman's (1975b) JCL, Laforge and Suczek (1955) ICL and Hall's (1968, 1969) Professionalism scale performed within the limits for co-efficient alpha of 0.5 to 0.7, as suggested by Nunnally (1978). However, there are two exceptions. First, the Formalisation Scale of Aiken and Hage (1967) performed better as separate sub-scales than one over-all scale. Furthermore, the measures of Centralisation, Formalisation (Aiken and Hage 1967) and Professionalism (Hall 1968, 1969) were within the limits established by other studies. Second, Fineman's (1975a) WPQ measure of n-Ach although performing within the limits suggested by Nunnally, had a reliability co-efficient in both the main and pilot study that was less than that determined by Fineman (1975a).

It can be concluded that the standardised tests performed satisfactorily in the present study with some reservation about the reliability of the WPQ.

A GENERAL PROFILE OF THE SAMPLE

In accordance with the principle of unitary status the sample was classified as Chartered Quantity Surveyors in toto. The characteristics of the sample are discussed under the following headings,

- demographic variables
- employment characteristics

Table 24 Co-efficient alpha's for standardised scales used in the current research across studies

SCALE	Pilot Study 1980 N=60	Male(1984)* QS Study 1981/2 N=421, 439	Snizek (1972) validation study N=556	Hall in Snizek(1972) (25 items) N=328	Dewar et al (1980) N=16, 72	Fineman (1975a,b)
Centralisation (Aiken & Hage)						
Participation in decision making		0.93			0.81-0.95	
Hierarchy of authority		0.85			0.70-0.96	
Formalisation (Aiken & Hage)						
Job codification		0.74			0.67-0.85	
Rule observation		0.73			0.73-0.88	
Rule manual (single item)		-				
Job description (single item)		-				
Specificity of job description		0.71			0.45-0.76	
Over-all scale		0.49				
Job Climate Questionnaire (JCL)	0.90	0.90				0.88 (N=229)
Need for Achievement (WPQ)*	0.62	0.59				0.68 (N=562)
Professionalism (Snizek/Hall)						
Professional Association		0.70	0.62	0.69		
Public Service		0.68	0.64	0.74		
Self Regulation		0.68	0.70	0.73		
Vocation		0.71	0.58	0.70		
Autonomy		0.73	0.74	0.76		
Over-all scale	0.71	0.79	0.78	0.84		

* Co-efficient alpha for 6 point discrimination scale .64 in current research study

Table 25 Co-efficient alpha's for octant scores on ICL
Source: Male (1984)

SCALE	CO-EFFICIENT ALPHA N=434
Interpersonal Behaviour (ICL)	
Managerial - Autocratic	0.74
Responsible - Over-generous	0.70
Co-operative - Over-conventional	0.73
Docile - Dependent	0.65
Modest - Self-Effacing	0.63
Sceptical - Distrustful	0.71
Blunt - Aggressive	0.70
Competitive - Exploitive	0.71

Demographic characteristics

1. Sex.

   The sample is 99.1% male and 0.9% female. Sex was ignored in statistical analysis.

2. Nationality.

   Ninety-nine point eight percent of the sample is British; 0.2% held dual nationality. Nationality is ignored in statistical analysis.

3. Age.

   The age distribution of the sample is indicated in Table 26. The modal age is 31-35 years old with an average age of 39.6 years.

4. Marital status.

   The majority of the sample is married (82%, N = 449); 10% are classified as single and 8% classified as divorced, remarried or separated.

5. Birth order.

   The distribution of the sample by birth order is indicated in Figure 29. Approximately 51% of the sample are only or first born children.

6. Social Class.

   The sample was classified according to social class (Table 27). Father's occupation was classified according to the OPCS (1980) categories. An element of subjective interpretation was involved in certain responses as respondents did not provide a full occupational description. However, where possible OPCS guidelines were followed (see Appendix 10). The results indicate that quantity surveyors come from the total social spectrum. Two dominant groups emerge. These are Social Class 2, the intermediate category and Social Class 3M, the skilled manual occupations. The modal group is Social Class 2.

Table 26 Distribution of total sample by Age

Category	Absolute Freq.	Relative Freq. %	Adjusted Freq. %
LE 25	5	1.1	1.1
26-30	85	18.9	19.0
31-35	102	22.7	22.8
36-40	76	16.9	17.0
41-45	55	12.2	12.3
46-50	42	9.4	9.4
51-55	54	12.0	12.1
56-60	20	4.5	4.5
61 Plus	8	1.8	1.8
Missing	2	0.4	Missing
TOTAL	449	100.0	100.0

Mode 31-35 years (33 years)

Mean 39.64 years: Standard Deviation 9.94

Median 37.28 years

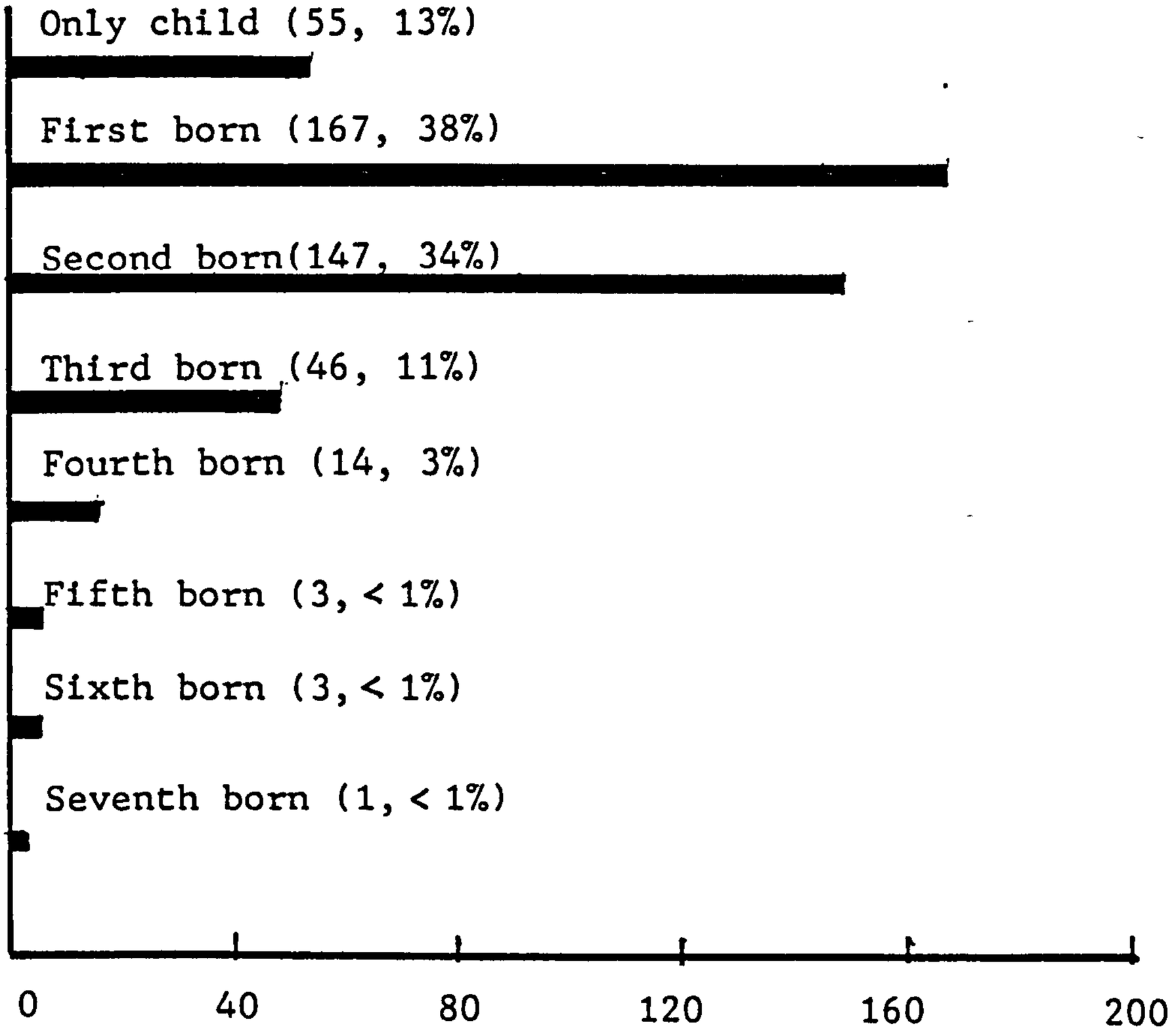


Figure 29 Distribution of total sample by birth order

Table 27 Distribution of sample by Father's Social Class

Category	Absolute Freq.	Relative Freq. %	Adjusted Freq. %
Class 5 Unskilled	14	3.1	3.4
Class 4 Semi Skilled	29	6.5	7.1
Class 3M Skilled Manual	117	26.1	28.8
Class 3N Skilled Non Manual	58	12.9	14.3
Class 2 Intermediate	144	32.1	35.5
Class 1 Professional	36	8.0	8.9
Deceased	8	1.8	2.0
Missing	43	9.6	Missing
TOTAL	449	100.0	100.0

7. Education.

The educational attainment of the sample is indicated in Figure 30. Thirty four percent are qualified to O Level standard only and 30% to A Level standard only. Furthermore, 19% of the sample had attended public/private schools. The sample is, therefore, predominantly state educated.

Employment characteristics

This section deals specifically with the present employment situation of the quantity surveyor.

1. Current employment.

Table 28 sets out the current sector of employment for the sample. Three main groups emerge; 41% are employed in Private Practice, 23% in Central and Local Government and 30% in Contracting. The modal group is Private Practice.

Statistical analyses use these three main occupational categories (designated "Sector of Employment").

2. Geographical location of employment.

Figure 31 sets out the geographical distribution or respondents. The modal group are employed in the South East ie. outside the Greater London area. Definitions of geographical location are indicated in Appendix 9 .

3. Size of employing organisation.

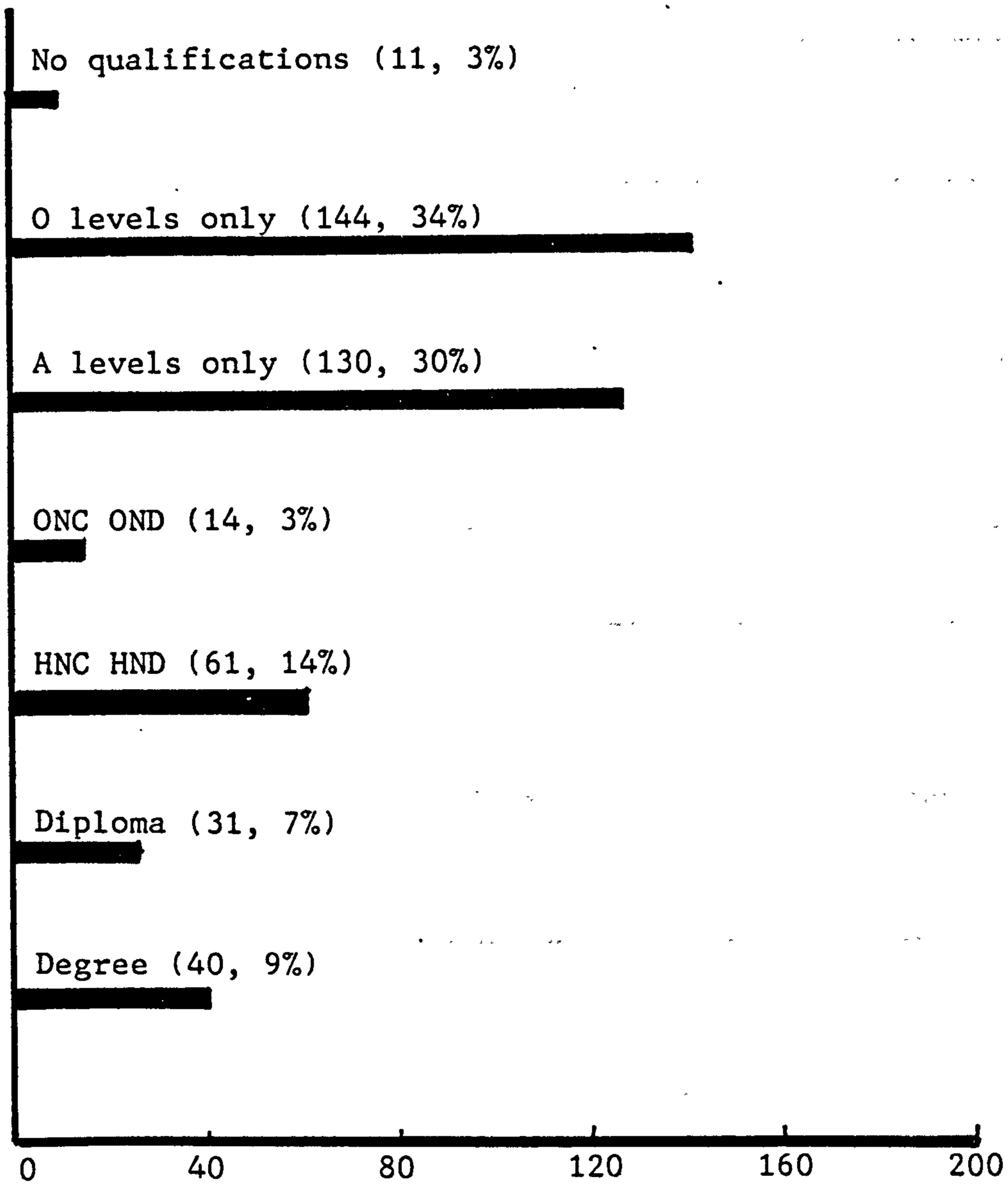
Figure 32 illustrates the size of employing organisation. The sample is predominantly employed in very small or small organisations, 63% employ fewer than 250 people.

4. Project responsibility.

Respondents were requested to indicate the approximate value of work they are responsible for in any one year. Table 29 indicates the response. The modal group is responsible for approximately £2-5 million (1981/82 prices).

5. Organisational level.

Respondents were coded according to two distinct classes. The first approach was initially by job title and position



N= 431

Mode O levels only

Figure 30 Distribution of total sample by highest qualification obtained

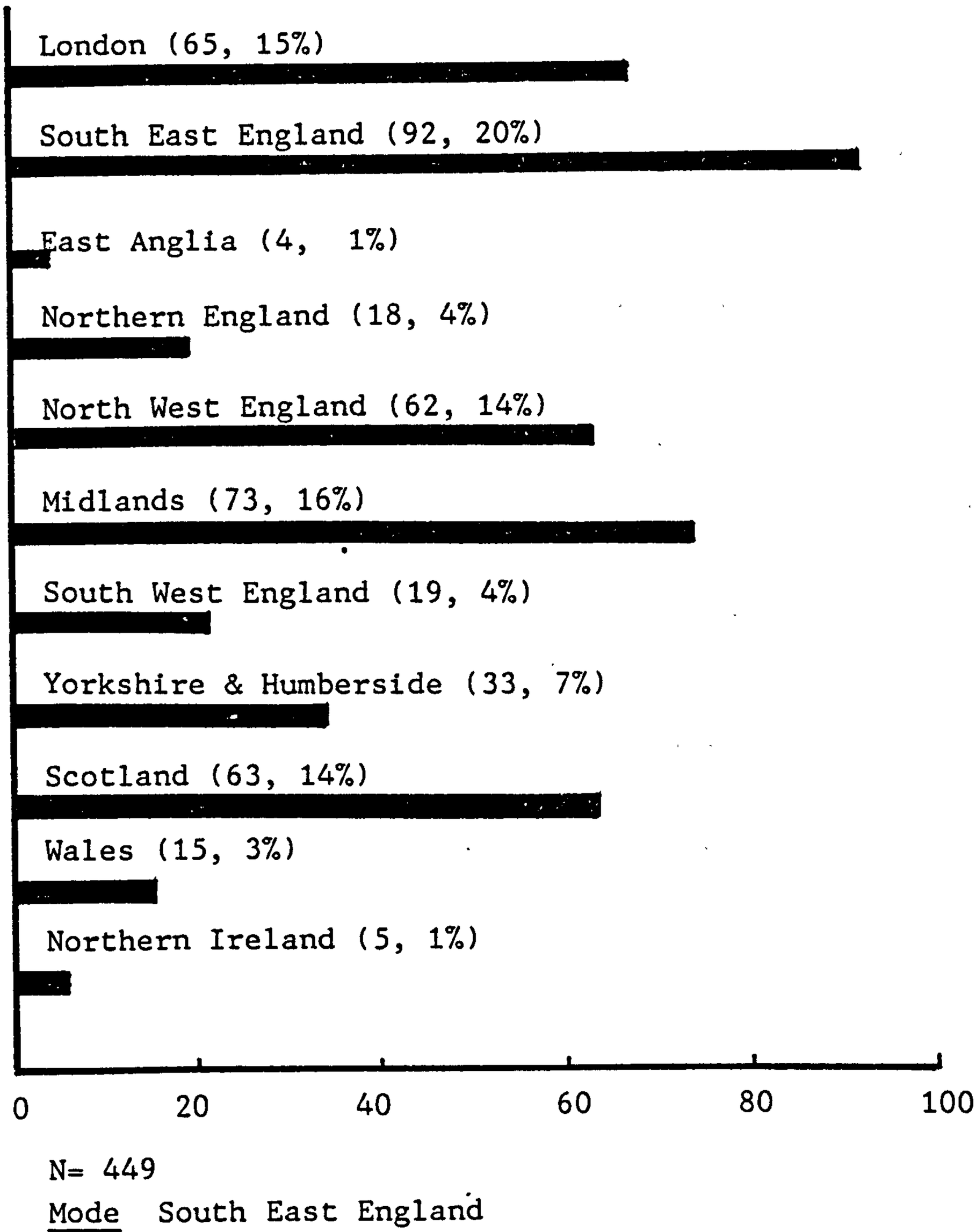
Table 28 Distribution of sample by Current Employment

Category	Absolute Freq.	Relative Freq. %	Adjusted Freq. %
Private Practice	184	41.0	41.3
Central Local Govt.	103	22.9	23.1
Education	15	3.3	3.4
Contracting	132	29.4	29.7
Commercial	11	2.4	2.5
Missing	4	0.9	Missing
	449	100.0	100.0

Table 29 Distribution of Sample by Project Responsibility in £M

Category	Absolute Freq.	Relative Freq. %	Adjusted Freq. %
LT 0.9M	50	11.1	13.3
1-1.9M	77	17.1	20.4
2-5M	138	30.7	36.6
6-10M	55	12.2	14.6
11-30M	42	9.4	11.1
30M+	15	3.3	4.0
Missing	72	16.0	Missing
	449	100.0	100.0

Mode £2-5M



N= 449

Mode South East England

Figure 31 Distribution of total sample by geographical location

Table 30 Distribution of sample by adjusted Management Level

Category	Absolute Freq.	Relative Freq. %		Adjusted Freq. %
Lower	98	21.8	+0.6	22.4
Middle	228	50.8	+1.3	52.1
Top	112	24.9	+0.7	25.6
				100.1
Missing	11	2.4		Missing
	449	100.0		100.0 X

Mode Middle Management

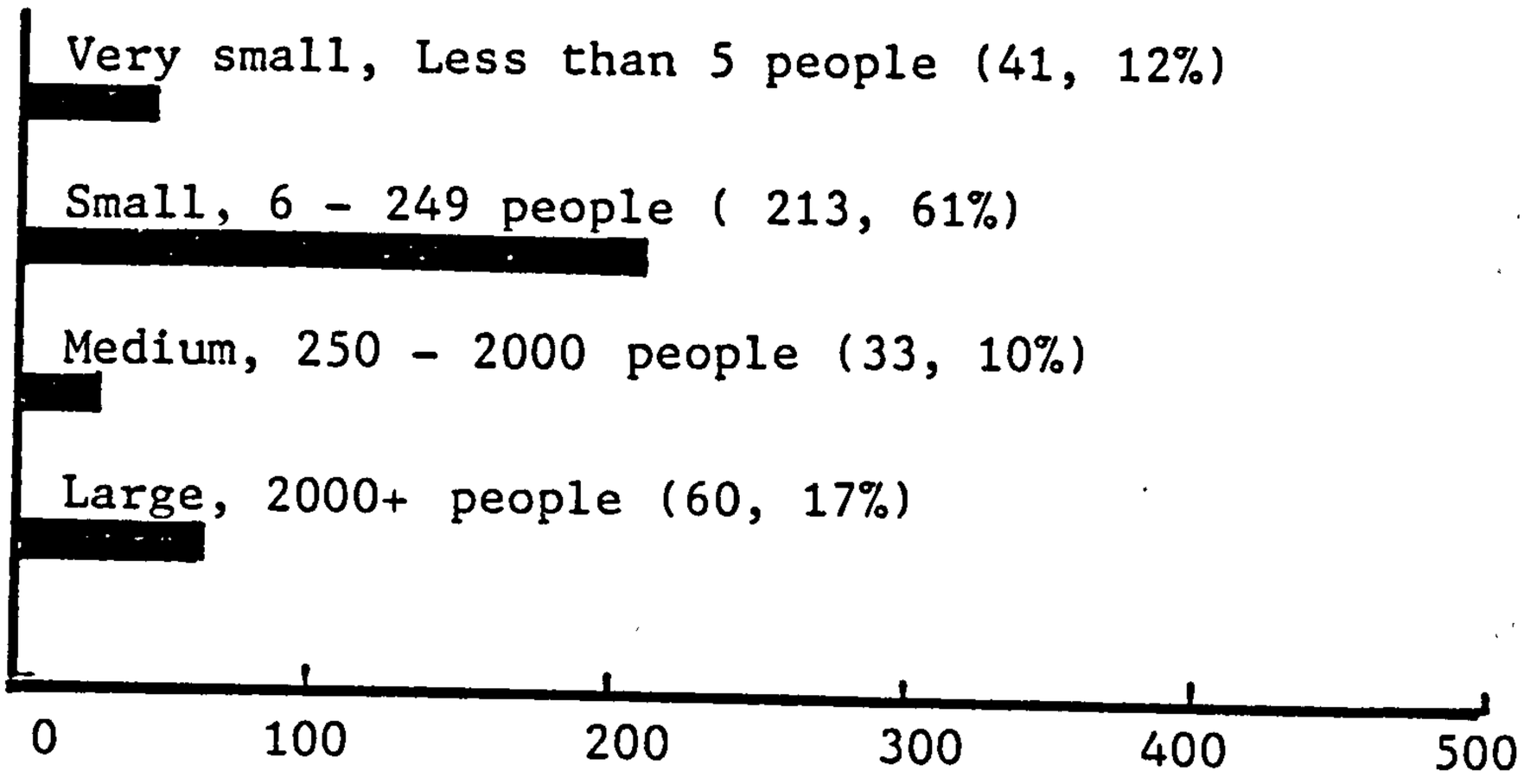


Figure 32 Distribution of total sample by size of employing organisation

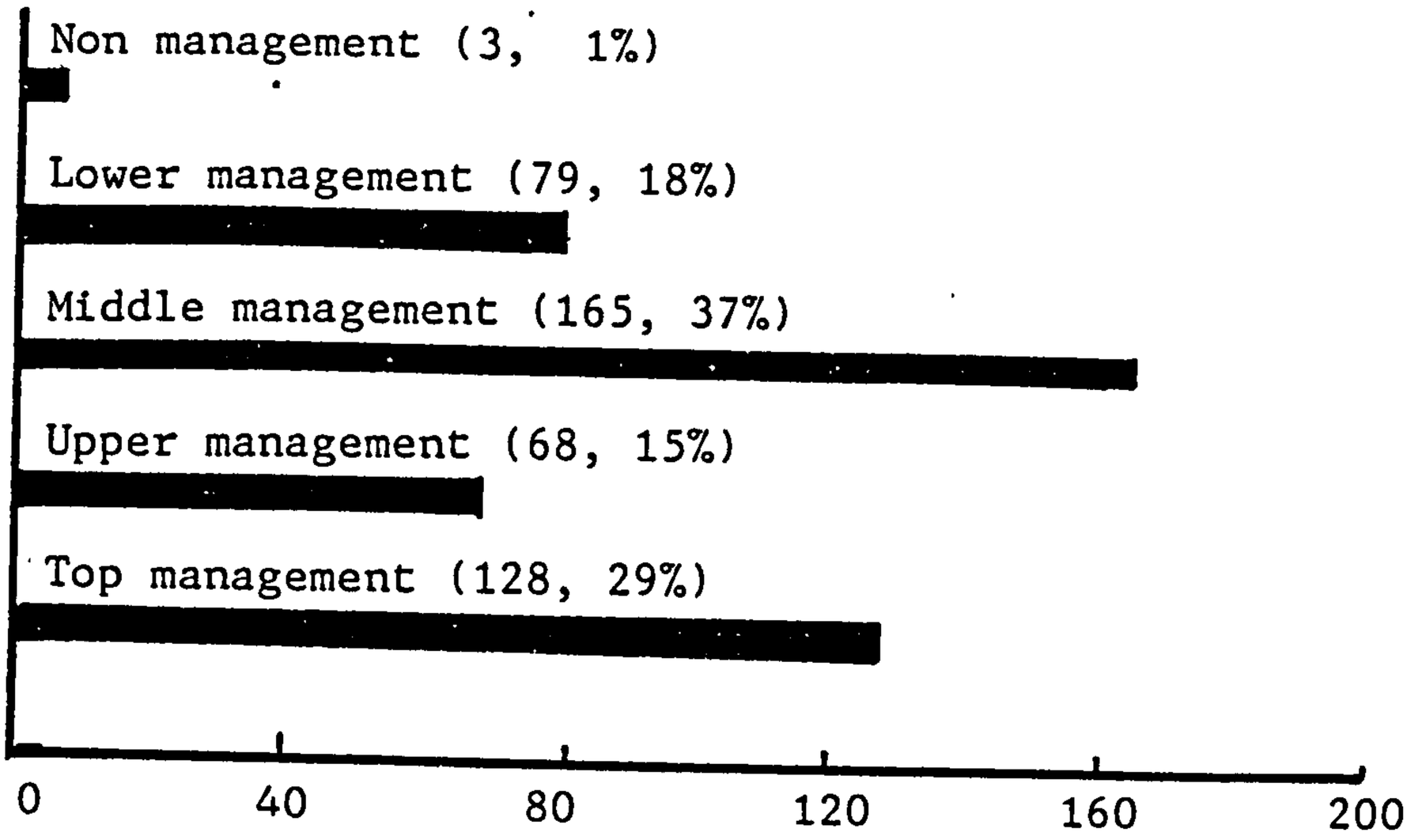


Figure 33 Distribution of total sample by non adjusted management level

in the hierarchy as indicated on an organisational diagram. Distributions by unadjusted organisational level are indicated in Figure 33. In the second approach the sample was readjusted in the light of income, project responsibility and unadjusted organisational level. The distribution by adjusted organisational level is indicated in Table 30. Statistical analyses proceeded using adjusted hierarchical levels throughout.

THE TYPICAL QUANTITY SURVEYOR

Taking the sample as a whole, and using modal categories, the typical quantity surveyor is male, approximately 31 to 35 years old and married. He is a first born child and is likely to come from either Social Class 2 (intermediate occupations, more common) or a Social Class 3 (skilled manual) background. He will have been state educated to O Level standard (having five or six O Levels).

He works in private practice in an organisation located somewhere in the South East of England. The organisation has a size range in the order of 6-250 people. The typical quantity surveyor occupies a middle management position in charge of between £2-5 million of work per annum at 1981/1982 prices.

A fuller description by sector of employment will be found in Appendix 6 .

THE EXPLORATION OF THE PARADIGM

The following results are presented in the order of stated propositions (see Chapter 6). Spearman rank-order coefficients have been computed and are presented in Tables 31 and 32. A value of $p \leq .05$ was pre-set as the required degree of statistical significance. Correlational diagrams will be presented in the text where high order interactive effects are considered to be operating. SPSS non-parametric correlation, Kruskal-Wallis ANOVA and cross-tabulation sub-programmes were used to compute results.

Family influences (N = 216, Table 31, p. 313)

Propositions 1, 2, 3, 4 and 5 were not supported.

Proposition 6 There is an association between n-Ach and educational attainment.

n-Ach x educational attainment $r = .13$, $p \leq .05$

Figure 34 illustrates findings on family influences.

The next section deals with institutionalised occupational structuring, this represents the position prior to amalgamation of the IQS and RICS. The sample is treated, therefore, as if individuals are members of the RICS, IQS or hold joint membership of both institutions.

Table 31 Spearman Rank-order correlation co-efficients between major variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
No: years spent at secondary school	1																												
No: years taken to qualify	2	-25																											
Time spent at professional seminars	3	14	-12																										
No: years in present organisation	4	-29	14	19																									
No: changes in employment	5	-25	21	-13	-13																								
Birth order	6	00	02	00	05	-13																							
Tenure in present position	7	-31	19	08	69	15	00																						
No: professional qualifications	8	-13	01	08	13	13	-09	05																					
Hierarchy of Authority	9	-06	12	02	-07	10	07	-01	-11																				
Participation in decision making	10	-26	03	19	39	14	-12	35	22	-09																			
Formalisation	11	02	05	-09	-07	-04	05	11	04	-02	01																		
Dominance	12	-05	-05	16	15	13	09	07	19	-11	29	-16																	
Affiliation	13	-17	18	-08	13	-01	-01	15	-07	13	05	00	-30																
Competitiveness	14	07	-14	16	01	08	12	-06	18	-16	16	-10	80	-78															
Responsibility	15	-22	14	06	25	09	07	22	02	04	23	-13	44	67	-13														
Achievement job climate	16	-06	-07	12	22	-07	00	13	19	-34	52	-03	32	02	20	23													
Need for achievement	17	07	-08	10	-02	-02	10	-06	08	-19	15	-03	17	-20	24	-08	12												
Professionalism	18	-13	05	30	27	05	-05	18	05	-18	41	-14	28	05	15	23	43	09											
Age	19	-48	23	09	61	45	03	61	08	11	49	-10	20	18	01	33	15	-05	33										
Adjusted management level	20	-21	04	19	48	12	07	33	18	-01	59	00	23	11	07	25	29	01	26	52									
Social class	21	18	-18	-03	-07	-08	03	00	-05	00	-07	10	00	06	-04	08	12	-05	-06	-08	00								
Task variety or diversity	22	07	09	08	12	-06	-04	19	-05	08	32	08	06	05	00	11	05	04	17	10	22	03							
Professional tasks	23	-10	01	09	30	-02	04	32	-05	11	24	10	14	06	04	19	03	07	18	37	27	12	42						
Management tasks	24	-06	03	-06	-03	01	09	-19	-01	-11	14	-21	07	-01	07	01	12	-01	07	-12	-01	-13	-01	-58					
Technical tasks	25	20	05	-19	-27	-19	-05	-26	-11	00	-46	06	-22	-02	-13	-15	-29	-18	-19	-39	-43	-05	-01	-37	06				
Entrepreneurial tasks	26	-16	01	08	22	11	03	23	15	07	56	14	08	-05	07	00	31	04	15	28	34	05	38	18	-10	-25			
Log organisational size	27	00	-04	20	08	-07	15	-15	-02	11	-22	-24	07	-15	13	-10	-17	06	-03	02	-05	-06	-23	-08	07	-05	-26		
Highest educational attainment	28	41	-22	11	-34	-28	05	-45	12	00	-26	03	-02	-21	12	-19	-06	13	-15	-52	-25	01	-17	-22	02	13	-23	16	

N=216
$r \geq .13$, $p \leq .05$
$r \geq .17$, $p \leq .01$
$r \geq .21$, $p \leq .001$

Table 31 Spearman Rank-order correlation coefficients between major variables

Table 32 Spearman Rank-order correlation coefficients of major organisational variables.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
No: years in present organisation	1																												
Tenure in present position	2	67																											
Hierarchy of Authority	3	01	04																										
Participation in decision making	4	35	29	-08																									
Job codification	5	20	11	35	05																								
Rule manual	6	18	08	08	05	47																							
Job description	7	-08	03	-06	02	-17	-29																						
Specificity of job description	8	-19	03	-14	-09	-36	-42	51																					
Rule observation	9	-04	11	-39	09	-34	21	29	46																				
Dominance	10	14	08	-14	29	-02	08	-10	-20	00																			
Affiliation	11	13	15	10	05	13	05	03	-07	-07	-22																		
Competitiveness	12	01	-05	-16	16	-11	00	-04	-07	07	77	-77																	
Responsibility	13	23	21	-01	23	06	06	-02	-19	-06	47	69	-13																
Achievement job climate	14	19	16	-33	50	-07	05	03	-08	21	34	02	21	24															
Need for achievement	15	-02	-03	-18	17	-20	-05	04	16	11	13	-15	20	-06	14														
Professional Association	16	19	17	04	25	-07	13	-03	-17	-01	05	07	01	08	15	07													
Public Service	17	02	-04	-10	10	-02	08	-07	-15	04	12	08	02	15	20	04	23												
Self Regulation	18	20	08	-16	24	06	07	07	-09	07	28	04	15	19	30	05	16	12											
Vocation	19	30	25	-01	32	22	18	-11	-35	-08	15	13	01	23	24	03	35	34	27										
Autonomy	20	07	11	-38	37	-27	-20	09	08	31	38	-19	37	09	46	16	03	08	16	12									
Age	21	60	54	10	49	21	18	-12	20	05	19	19	04	27	14	-04	25	03	14	40	20								
Adjusted management level	22	48	32	00	57	18	19	00	-12	02	22	08	08	20	29	03	15	00	16	21	26	51							
Task variety or diversity	23	12	17	02	32	06	07	-02	07	09	09	03	05	11	04	03	12	10	10	03	09	14	20						
Professional tasks	24	32	33	10	22	15	14	03	01	08	13	08	02	18	03	07	22	04	07	16	00	37	29	34					
Managerial tasks	25	-08	-22	11	15	-07	-07	-12	-17	-10	08	-01	07	02	12	-01	15	10	09	01	13	-13	-04	-01	-57				
Technical tasks	26	-25	-23	01	-44	-10	-12	11	12	04	-19	-02	-11	-14	-27	-18	-11	08	-08	-23	-18	-38	-41	-02	-38	05			
Entrepreneurial tasks	27	21	23	05	57	10	04	10	06	06	10	-04	09	04	31	05	13	-03	10	10	22	28	35	39	16	-07	-27		
Log organisational size	28	11	-15	10	-19	14	14	-29	-32	-23	07	-09	10	-04	-15	02	07	-05	04	08	-22	05	-04	-21	-08	05	-06	-24	

N= 256
$r \geq .12$, $p \leq .05$
$r \geq .15$, $p \leq .01$
$r \geq .20$, $p \leq .001$

Table 32 Spearman Rank-order correlation coeffients of major organisational variables.

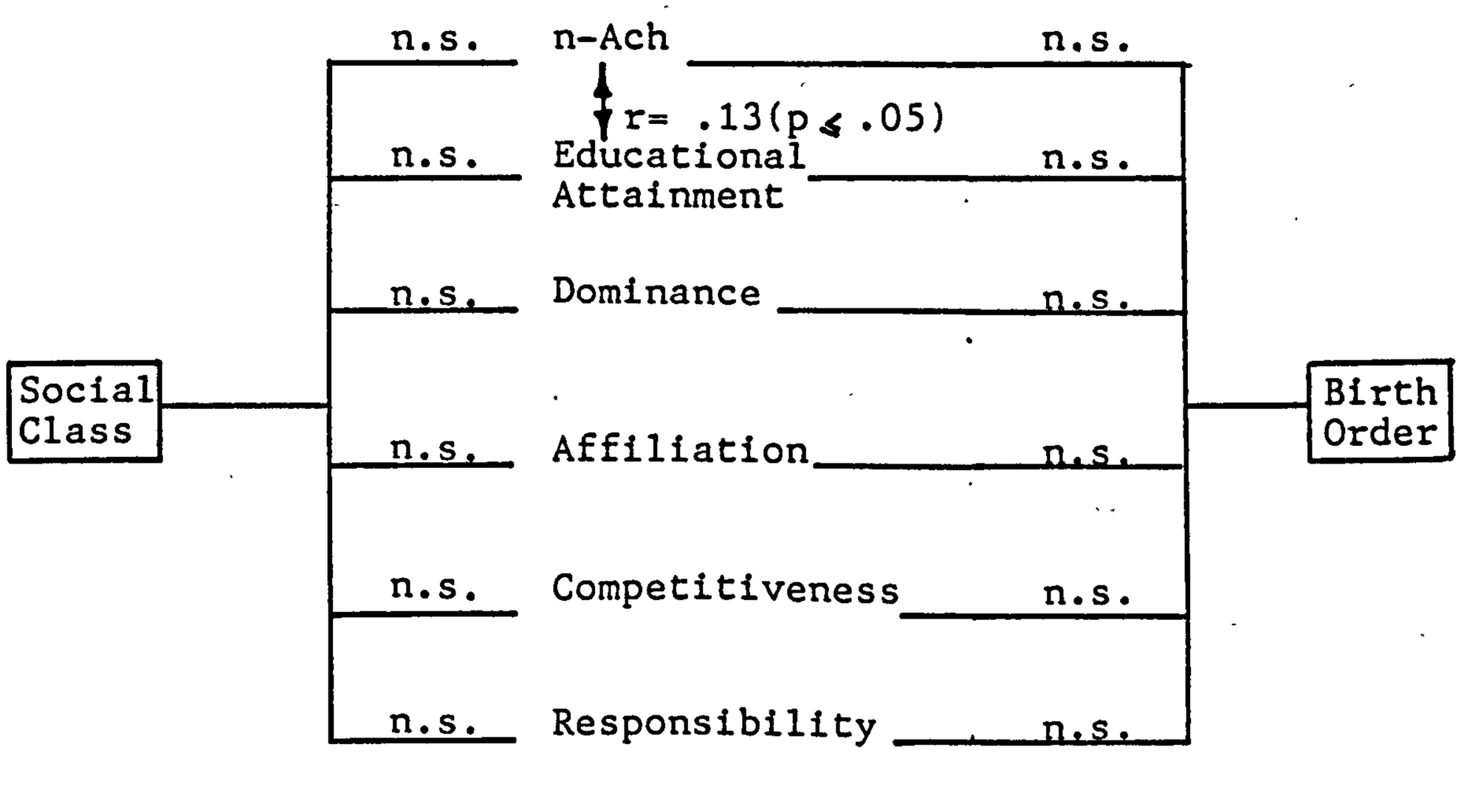


Figure 34 Relationships between family influences and education and personality dimensions

Occupational structuring - the RICS versus the IQS

Proposition 7 Institutional differences exist in the need for achievement.

Table 33 indicates a relationship between occupational structuring and strength of n-Ach ($\chi^2 = 6.35$, $p \leq .05$).

Proposition 8 was not supported.

Proposition 9 Different social classes have been attracted to different institutions.

Table 34 indicates a significant relationship between membership of professional association and social class ($\chi^2 = 18.85$, $p \leq .05$ and $\chi^2 = 16.56$, $p \leq .01$ depending on the existence of joint association membership). Three of the cell frequencies are below 5, therefore, some degree of caution is necessary in the interpretation of results.

Proposition 10 Members of each institution exhibit differences in professionalism.

Table 35 indicates for the separate dimensions of professionalism:

significant relationships between Professional association as a source of reference ($\chi^2 = 7.15$, $p \leq .05$), belief in self regulation ($\chi^2 = 5.72$, $p \leq .06$) and autonomy ($\chi^2 = 7.37$, $p \leq .05$) with occupational structuring.

Figure 35 illustrates findings on occupational structuring. The following section deals with the current occupational situation facing individuals. The sample is explored within three sectors of employment, namely, Private Practice, Government Service and Contracting. Those reflect a post-amalgamation situation.

Table 33 Kruskal-Wallis One Way ANOVA . Dimensions of personality by professional association

VARIABLE	RICS	IQS	RICS & IQS	χ^2	SIG
NEED FOR ACHIEVEMENT	214.28 (N=159)	183.62 (N=178)	207.33 (N=61)	6.35	$p \leq .05$
DOMINANCE	207.51 (N=161)	193.77 (N=179)	214.30 (N=64)	1.96	n.s.
AFFILIATION	206.41 (N=161)	201.57 (N=180)	198.45 (N=64)	0.26	n.s.
RESPONSIBILITY	214.25 (N=161)	193.22 (N=179)	198.91 (N=64)	2.84	n.s.
COMPETITIVENESS	202.12 (N=161)	198.09 (N=179)	215.79 (N=64)	1.09	n.s.

Table 34 Distribution of sample by social class and professional association

PROF: QUAL:	SOCIAL CLASS						
	5	4	3M	3N	2	1	TOTALS
+RICS	2 ≤1%	8 2%	31 8%	24 6%	57 15%	17 5%	139 37%
+IQS	10 3%	17 5%	63 17%	21 6%	53 14%	12 3%	176 47%
RICS & IQS	1 ≤1%	4 1%	15 4%	8 2%	25 7%	5 1%	58 16%
TOTALS	13 4%	29 8%	109 29%	53 14%	135 36%	34 9%	373 100%

$\chi^2 = 18.85$ $p \leq .05$

+ $\chi^2 = 16.56$ $p \leq .01$ with ARICS and AIQS members only

Table 35 Kruskal-Wallis One Way ANOVA. Dimensions of professionalism by professional association.

VARIABLE	RICS	IQS	RICS & IQS	χ^2	SIG
O/A PROFESSIONALISM	203.50 (N=163)	197.88 (N=182)	229.07 (N=64)	3.34	n.s.
PUBLIC SERVICE	193.73 (N=166)	218.18 (N=185)	207.79 (N=64)	2.83	n.s.
PROFESSIONAL ASSOC.	211.55 (N=166)	193.92 (N=185)	239.48 (N=64)	7.15	p<.05
SELF REGULATION	223.89 (N=166)	193.43 (N=185)	208.91 (N=64)	5.72	p<.06
VOCATION	194.00 (N=163)	215.52 (N=183)	206.14 (N=64)	2.87	n.s.
AUTONOMY	213.05 (N=166)	192.18 (N=184)	237.16 (N=64)	7.37	p<.05

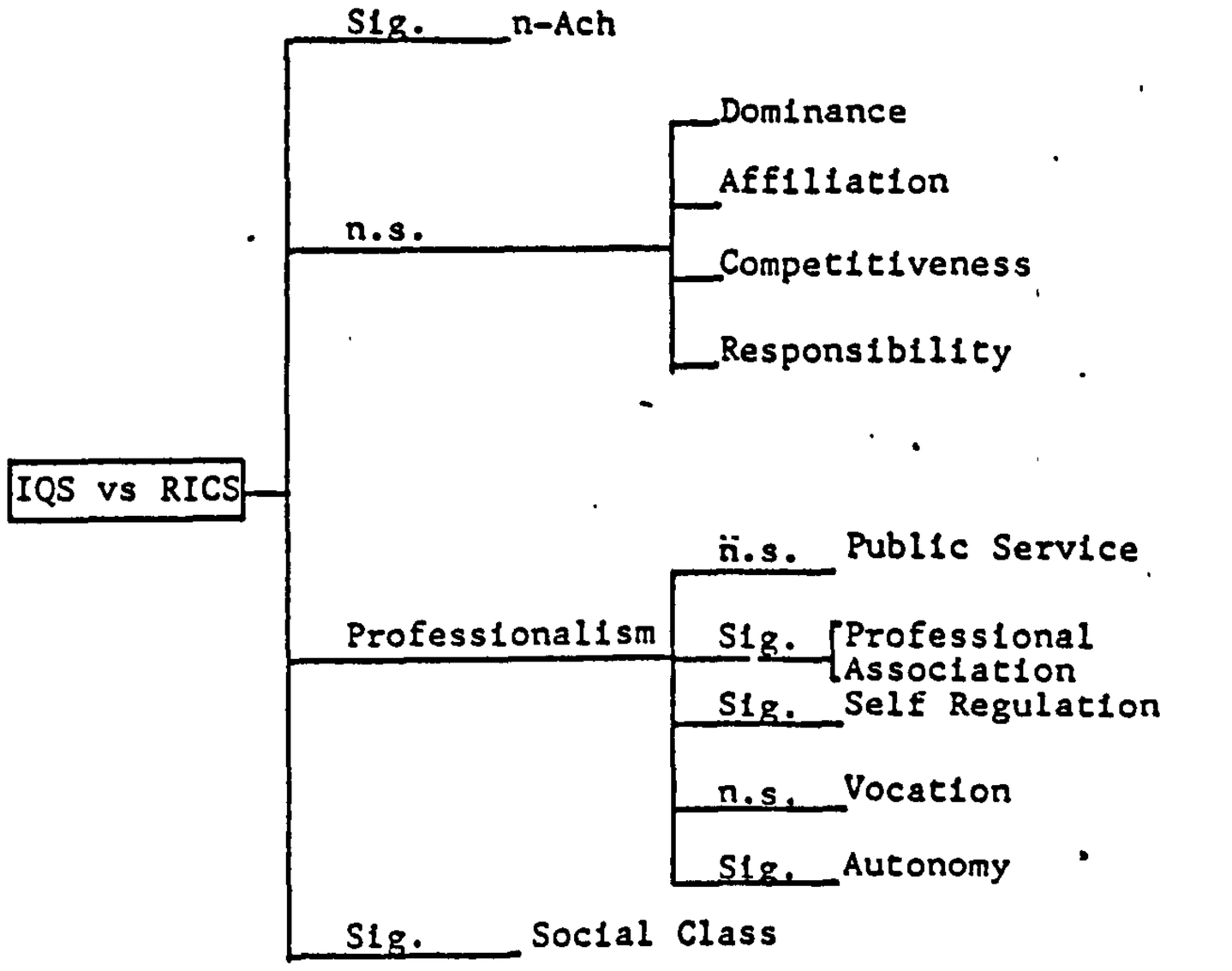


Figure 35 Relationships between occupational structuring and major dimensions of personality and professionalism

Sector of employment - Private Practice, Government and Contracting

Proposition 11 was not supported.

Proposition 12 The interpersonal orientation of individuals varies according to sector of employment.

Table 36 indicates significant relationships between sector of employment and the following interpersonal dimensions;

Affiliation-hostility $\chi^2 = 20.25$, $p \leqslant .001$
Responsibility $\chi^2 = 14.32$, $p \leqslant .001$
Competitiveness $\chi^2 = 8.68$, $p \leqslant .01$

Proposition 13 The degree of professionalism varies according to sector of employment.

Table 37 indicates the dimensions of Professional Association ($\chi^2 = 10.49$ $p \leqslant .01$) and autonomy ($\chi^2 = 33.60$, $p \leqslant .001$) vary according to sector of employment.

Proposition 14 The structuring of role positions varies according to sector of employment.

The major structural dimensions of centralisation (hierarchy of authority and participation in decision making) and formalisation on role positions vary significantly by sector of employment (all χ^2 are significant $p \leqslant .001$, Table 38).

Proposition 15 The nature of the task performed by individuals varies with sector of employment.

Table 39 indicates that all task variables except technical tasks differ by sector of employment ($p \leqslant .001$).

Figure 36 illustrates findings on relationships by sector of employment.

The following section analyses the sample by hierarchical level.

Table 36 Kruskal-Wallis One Way ANOVA. Dimensions of personality by sector of employment

VARIABLE	PRIVATE PRACTICE	GOVERNMENT	CONTRACTING	χ^2 SIG
NEED FOR ACHIEVEMENT	204.69 (N=177)	196.14 (N=98)	197.99 (N=125)	0.43 n.s.
DOMINANCE	203.16 (N=179)	202.08 (N=101)	205.12 (N=126)	0.04 n.s.
AFFILIATION	225.86 (N=180)	212.86 (N=101)	165.67 (N=126)	20.25 $p \leq .001$
RESPONSIBILITY	221.89 (N=179)	210.97 (N=101)	171.39 (N=126)	14.32 $p \leq .001$
COMPETITIVENESS	189.87 (N=179)	196.14 (N=101)	228.76 (N=126)	8.68 $p < .01$

Table 37 Kruskal-Wallis One Way ANOVA. Dimensions of professionalism by sector of employment

VARIABLE	PRIVATE PRACTICE	GOVERNMENT	CONTRACTING	χ^2 SIG
%A. PROFESSIONALISM	221.17 (N=180)	195.39 (N=102)	193.22 (N=129)	5.25 n.s.
PUBLIC SERVICE	220.48 (N=184)	195.46 (N=103)	203.48 (N=130)	3.28 n.s.
PROFESSIONAL ASSOC.	217.88 (N=184)	228.78 (N=103)	180.76 (N=130)	10.99 $p \leq .01$
SELF REGULATION	215.14 (N=184)	218.61 (N=103)	192.69 (N=130)	3.56 n.s.
VOCATION	211.72 (N=181)	214.93 (N=102)	192.51 (N=129)	2.66 n.s.
AUTONOMY	232.12 (N=183)	149.70 (N=103)	221.83 (N=130)	33.60 $p \leq .001$

Table 38 Kruskal-Wallis One Way ANOVA. Dimensions of organisational structure and job climate by sector of employment

VARIABLE	PRIVATE PRACTICE	GOVERNMENT	CONTRACTING	χ^2	SIG
HIERARCHY OF AUTHORITY	186.94 (N=162)	234.49 (N=102)	180.00 (N=129)	15.77	p≤.001
PARTICIPATION IN DECISION MAKING	230.30 (N=172)	167.20 (N=103)	195.24 (N=130)	19.95	p≤.001
FORMALISATION	254.40 (N=175)	151.78 (N=103)	179.09 (N=130)	58.17	p≤.001
JOB CLIMATE	223.02 (N=166)	122.82 (N=102)	228.32 (N=129)	60.67	p≤.001

Table 39 Task variable by sector of employment

VARIABLE	PRIVATE PRACTICE	GOVERNMENT	CONTRACTING	χ^2	SIG
TASK VARIETY	254.28 (N=183)	210.03 (N=103)	144.94 (N=131)	63.32	p≤.001
% PROFESSIONAL TASK	246.59 (N=183)	247.77 (N=103)	126.00 (N=131)	110.17	p≤.001
% MANAGERIAL TASK	187.61 (N=183)	194.41 (N=103)	250.36 (N=131)	30.14	p≤.001
% TECHNICAL TASK	208.60 (N=183)	201.25 (N=103)	215.65 (N=131)	1.15	n.s.
% ENTREPRE-NEURIAL TASK	240.30 (N=183)	140.49 (N=103)	219.15 (N=131)	61.48	p≤.001

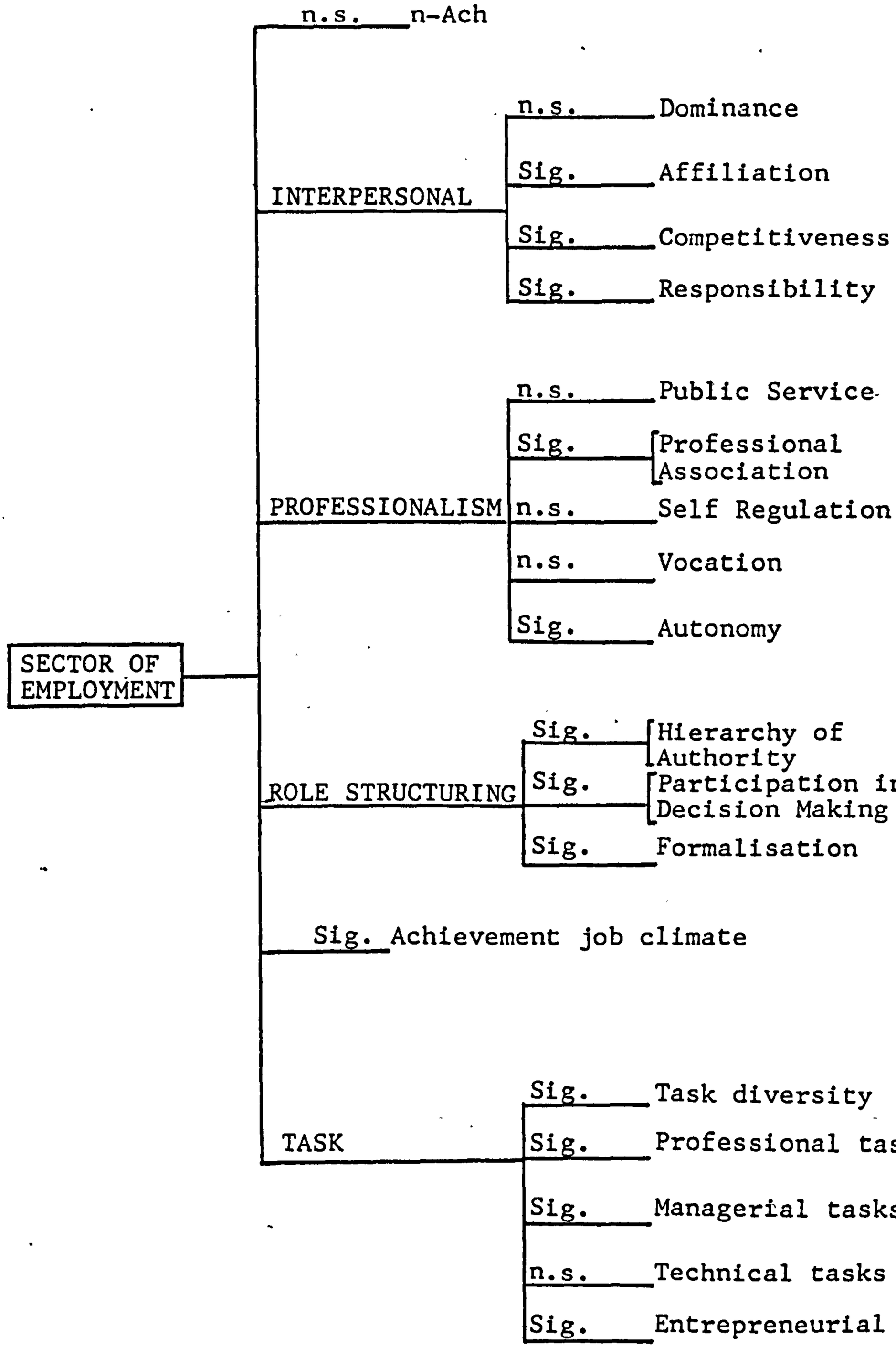


Figure 36 Relationships between sector of employment and role, personality and professionalism variables

Proposition 16 was not supported.

Proposition 17 The interpersonal orientation of individuals varies according to hierarchical position.

Hierarchical level x Dominance $r = .22$, $p \leq .001$

Hierarchical level x Responsibility $r = .20$, $p \leq .001$

Proposition 18 The degree of professionalism varies according to organisational rank.

The statistical effect of hierarchical position on dimensions of professionalism are as follows:

Hierarchical level x Professional Association $r = .15$, $p \leq .01$

Hierarchical level x Self regulation $r = .16$, $p \leq .01$

Hierarchical level x Vocation $r = .21$, $p \leq .001$

Hierarchical level x Autonomy $r = .26$, $p \leq .001$

Proposition 19 There is an association between the structuring of role positions and hierarchical rank.

The statistical effect of hierarchical position on overall structuring of role positions is as follows;

Hierarchical level x participation in decision making $r = .57$, $p \leq .001$

Further elaboration on the effects of formalisation will be dealt with in a future section.

Proposition 20 The perception of achievement climate varies according to hierarchical rank.

Hierarchical level x Achievement climate

$r = .29$, $p \leq .001$

Proposition 21 The nature of task activity varies with hierarchical rank.

Hierarchical level x task variety $r = .20$, $p \leq .001$

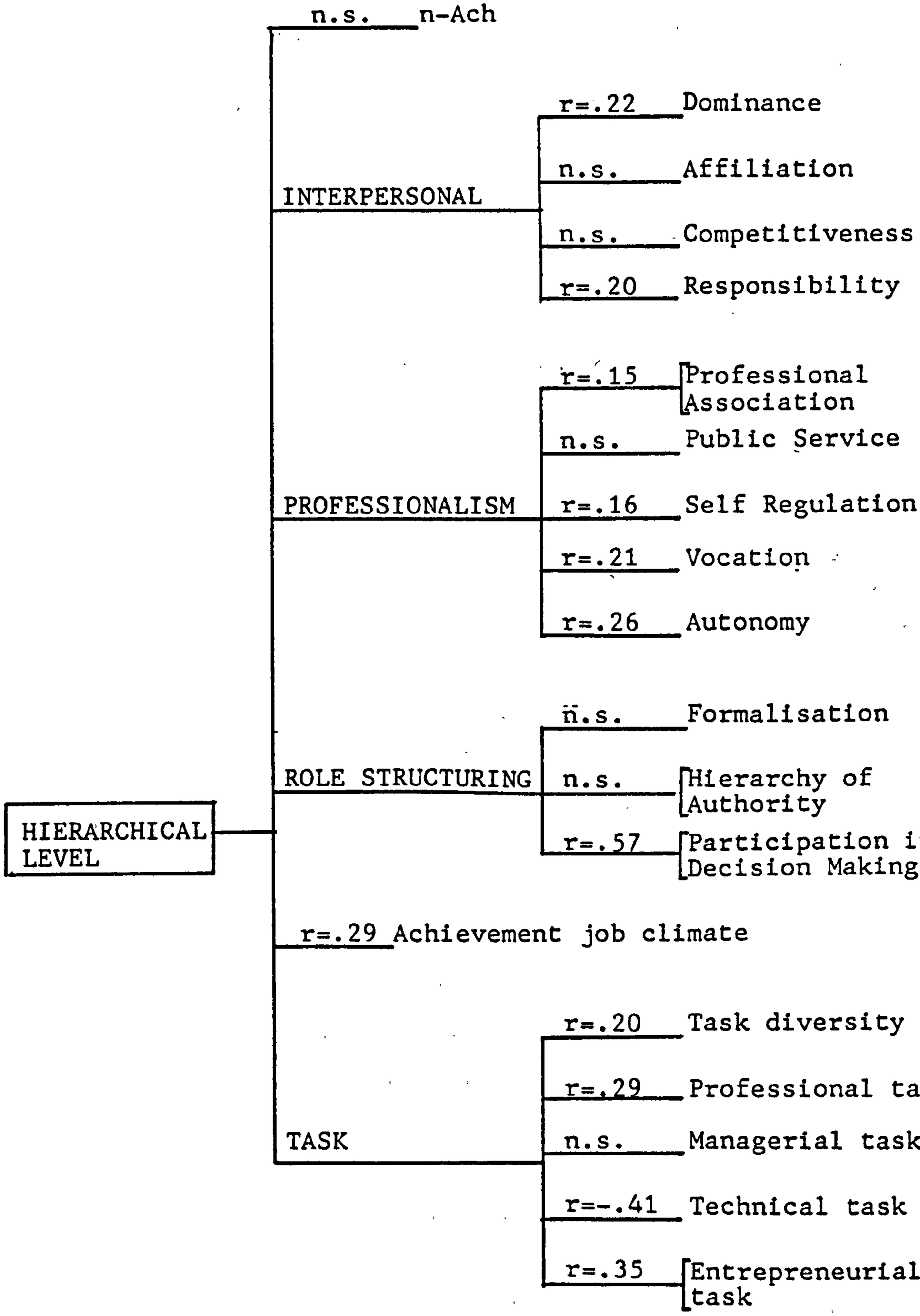
Hierarchical level x % of role as professional tasks $r = .29$, $p \leq .001$

Hierarchical level x % of role as technical tasks $r = -.41$, $p \leq .001$

Hierarchical level x % of role as entrepreneurial tasks $r = .35$, $p \leq .001$

Figure 37 illustrates findings on relationships with hierarchical position.

The following section explores relationships with the degree of structuring on role positions.



N= 256
$r \geq .12$, $p \leq .05$
$r \geq .15$, $p \leq .01$
$r \geq .20$, $p \leq .001$

Figure 37 Relationships between hierarchical level and major variables of role, personality and professionalism

Structural Relationships (N = 216, Table 31, p.313)

The relationships of structural effects on role positions are presented below. Further elaborations on the effects of structure will be presented in a future section.

Proposition 22 The degree of professionalism exhibited by individuals varies according to structuring of role positions.

Hierarchy of authority x overall professionalism
$r = -.18$, $p \leq .01$

Participation in decision making x overall professionalism $r = .41$, $p \leq .001$

Formalisation x overall professionalism
$r = -.14$, $p \leq .05$

Proposition 23 The achievement climate perceived by the individual is affected by the structuring of role positions.

Hierarchy of authority x Achievement Climate
$r = -.34$, $p \leq .001$

Participation in decision making x Achievement Climate $r = .52$, $p \leq .001$

Proposition 24 The strength of n-Ach is affected by the degree of structuring on role positions.

Hierarchy of authority x n-Ach $r = -.19$, $p \leq .01$

Participation in decision making x n-Ach
$r = .15$, $p \leq .05$

Proposition 25 The interpersonal orientation of individuals is affected by organisational role structuring.

Hierarchy of authority x Affiliation
$r = .13$, $p \leq .05$

Hierarchy of authority x Competitiveness
$r = -.16$, $p \leq .05$

Participation in decision making x Dominance
$r = .29$, $p \leq .001$

Participation in decision making x Competitiveness $r = .16$, $p \leq .05$

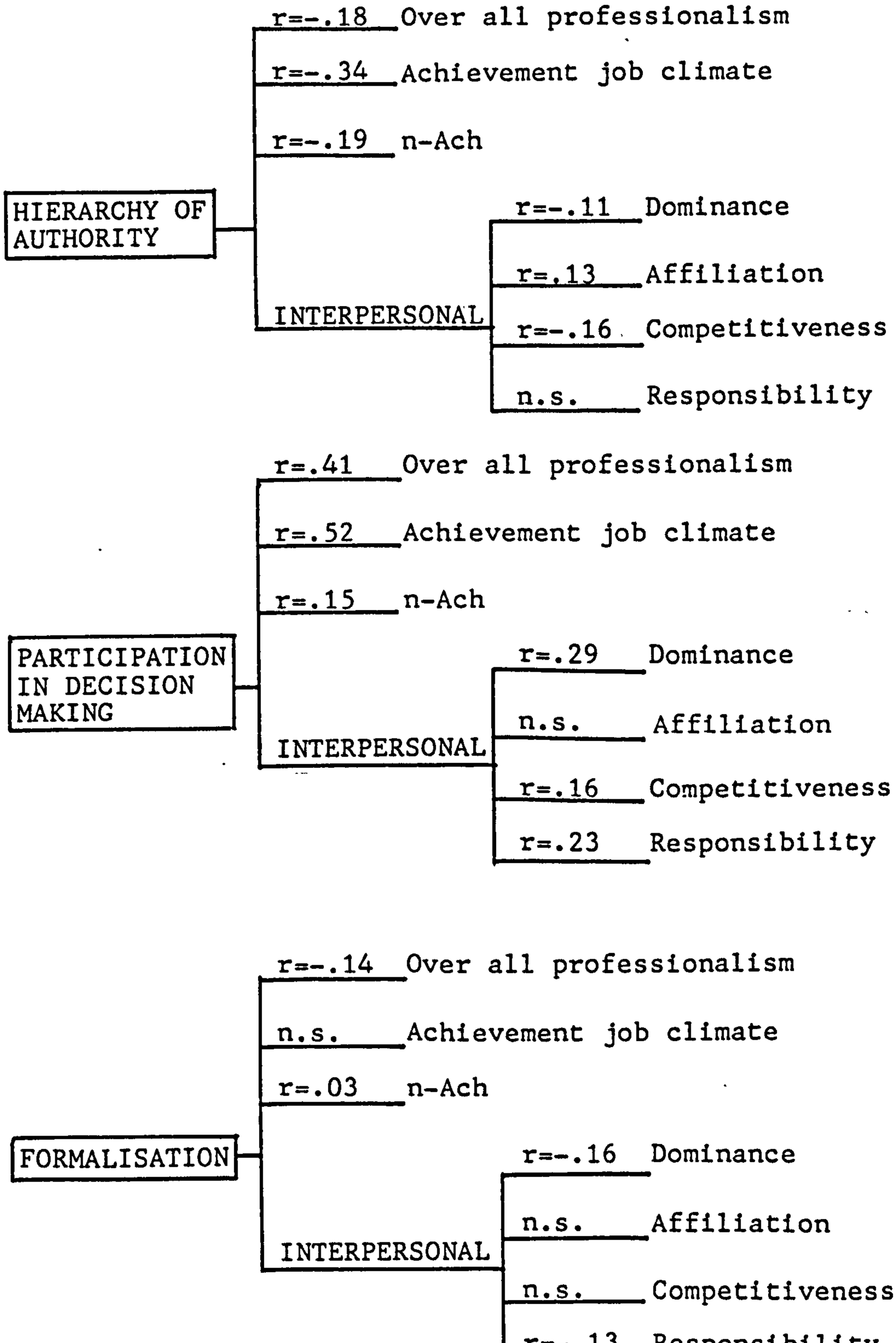
Participation in decision making x Responsibility $r = .23$, $p \leq .001$

Formalisation x Dominance $r = -.16$, $p \leq .05$

Formalisation x Responsibility $r = -.13$, $p \leq .05$

Figure 38 illustrates the findings on the relationships of structure on role position.

The following section explores relationships with task variables.



N= 216
$r \geq .13, p \leq .05$
$r \geq .17, p \leq .01$
$r \geq .21, p \leq .001$

Figure 38 Relationships between structuring on role positions and major variables of personality and professionalism

Task relationships (N = 216, Table 31, p.313)

Proposition 26 The nature of the task has an effect on the degree of professionalism exhibited by individuals.

Task relationships are explored on overall professionalism.

Task variety x overall professionalism
$r = .17, p \leq .01$

% of role as professional tasks x overall professionalism $r = .18, p \leq .01$

% of role as technical tasks x overall professionalism $r = -.19, p \leq .01$

% of role as entrepreneurial tasks x overall professionalism $r = .15, p \leq .05$

Proposition 27 Need for achievement is affected by the type of task undertaken by an individual.

% of role as technical tasks x n-Ach
$r = -.18, p \leq .001$

Proposition 28 The nature of the task affects the interpersonal orientation of an individual.

The following results represent statistically significant correlations between task dimensions and interpersonal dimensions.

% of role as professional tasks x Dominance
$r = .14, p \leq .01$

% of role as professional tasks x Responsibility
$r = .18, p \leq .001$

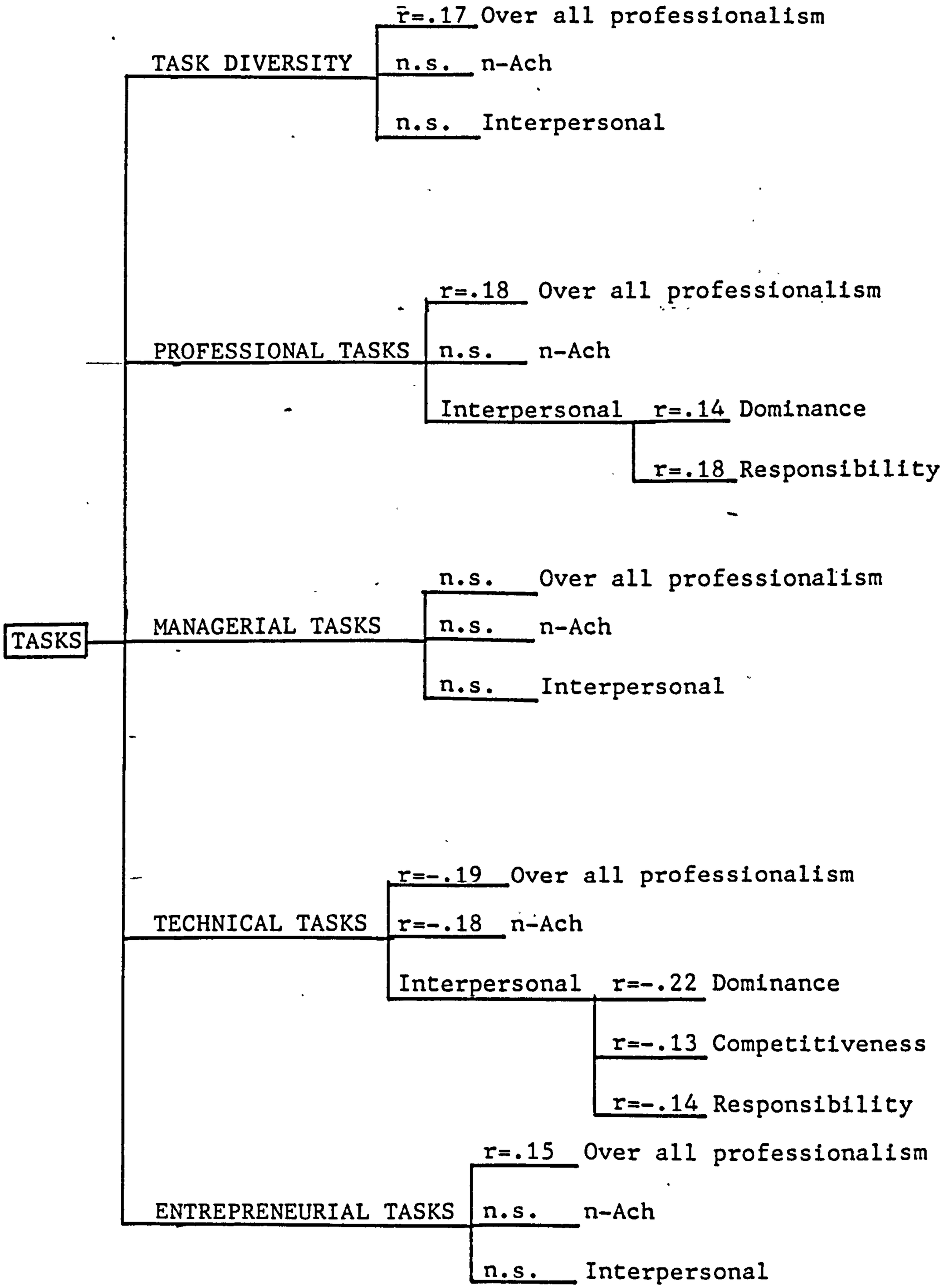
% of role as technical tasks x Dominance
$r = -.22, p \leq .001$

% of role as technical tasks x Competitiveness
$r = -.13, p \leq .05$

% of role as technical tasks x Responsibility
$r = -.14, p \leq .05$

Relationships with task variables will be further elaborated in a future section. Figure 39 illustrates findings on the relationships with task variables.

The next section explores the relationships of achievement climate on dimensions of personality and overall professionalism.



N=216
$r \geq .13, p \leq .05$
$r \geq .17, p \leq .01$
$r \geq .21, p \leq .001$

Figure 39 Relationships between task variables, personality dimensions and professionalism

Relationship of achievement climate (N = 216, Table 31, p313)

Proposition 29 The degree of professionalism exhibited by individuals is affected by the achievement climate perceived in a role position.

Achievement climate x overall professionalism
$r = .43, p \leq .001$

Proposition 30 There is an association between strength of n-Ach and achievement climate perceived in a role position.

Achievement climate x n-Ach $r = .12, p \leq .05$

Proposition 31 The interpersonal orientation of an individual is affected by the achievement climate perceived in a role position.

Achievement climate x Dominance
$r = .32, p \leq .001$

Achievement climate x Competitiveness
$r = .20, p \leq .01$

Achievement climate x Responsibility
$r = .23, p < .001$

Relationships with achievement climate will be further elaborated in a future section. Figure 40 illustrates findings on relationships with achievement climate.

The final section in the exploration of the research paradigm presents results in the relationship of organisational size with task variables.

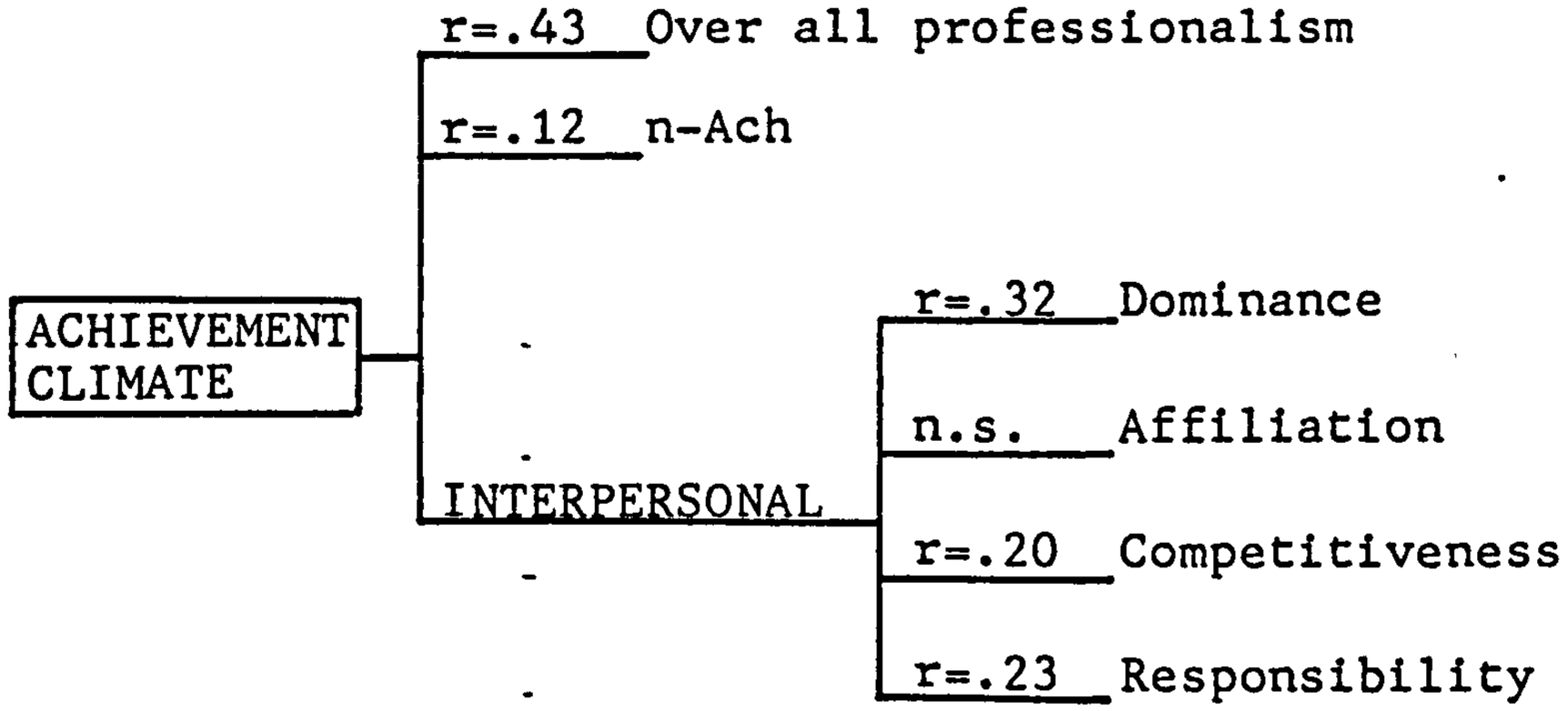


Figure 40 Relationship between achievement climate and major variables of personality and professionalism

Organisational size (N = 216, Table 31, p. 313)

Proposition 32 Task diversity is affected by organisational size.

Organisational size x task diversity
$r = -.23, p \leq .001$

Organisational size x % of role as entrepreneurial task $r = -.26, p \leq .001$

Figure 41 illustrates relationships between organisational size and task variables.

The exploration of the research paradigm is now complete. The next major section deals with results that have not specifically been suggested within the constraints of the theoretical discussions and paradigm.

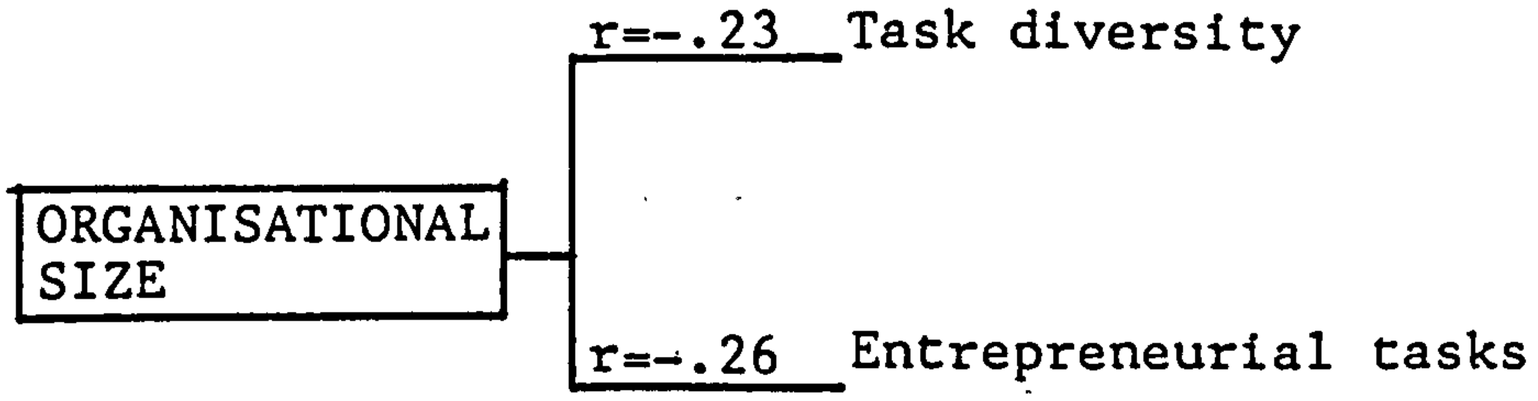


Figure 41 Relationships between organisational size and task variables

OTHER FINDINGS

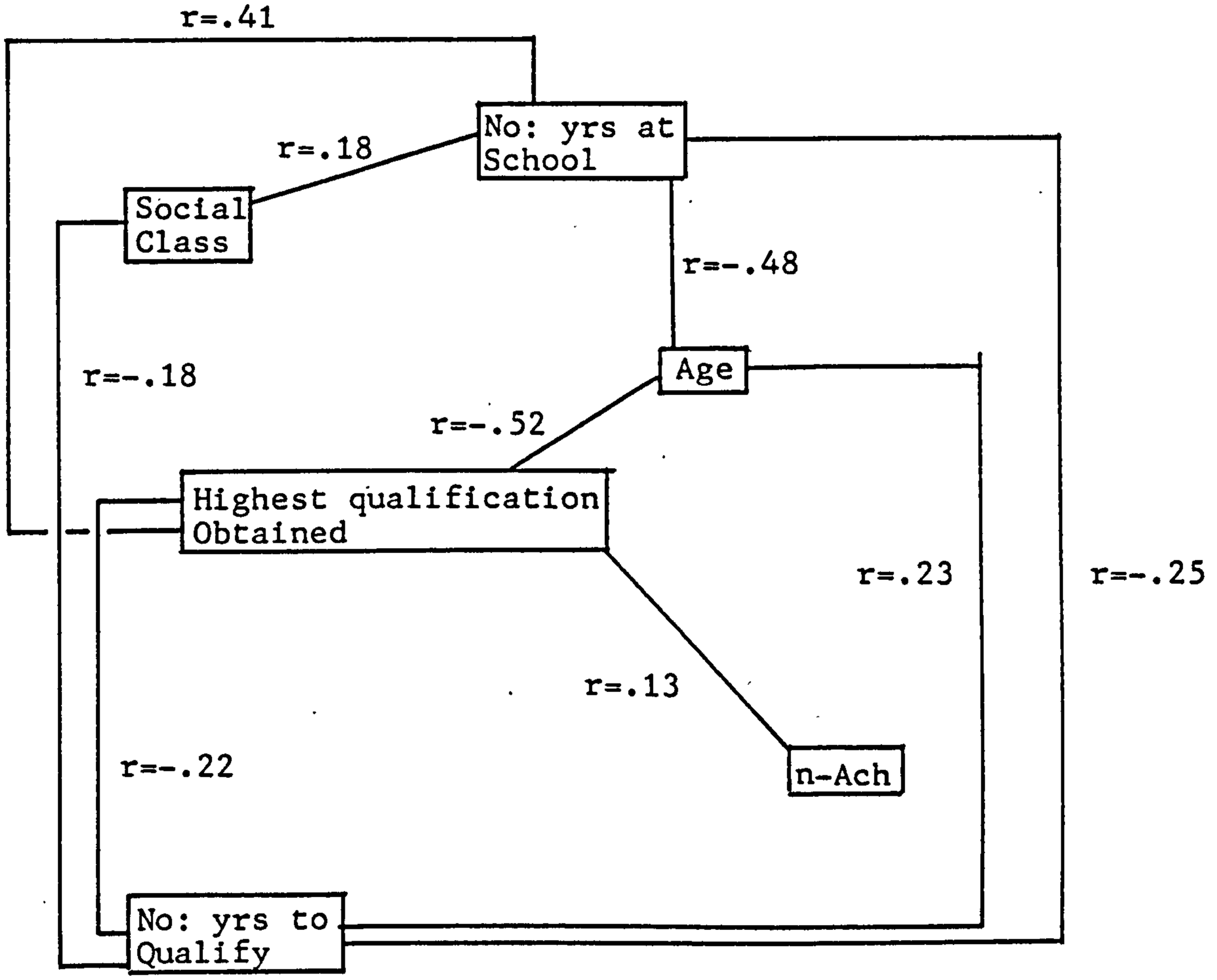
Social Class

Table 40 indicates the distribution of the sample by highest qualification obtained whilst Figures 42 to 44 illustrate the relationship between social class and major educational variables. They reflect results presented in Tables 41 and 42. Figure 42 describes relationships dealing with highest qualification obtained. It does not reflect gradations between numbers of "O" and "A" levels obtained. Figures 43 and 44, however, specifically deal with those individuals who are qualified to "O" and "A" level standard only and takes into account gradations in these qualifications.

Table 43 indicates no relationship between social class and sector of employment.

Table 40 Distribution of sample by Social Class by highest qualification obtained

HIGHEST QUALIFICATION	SOCIAL CLASS						
	5	4	3M	3N	2	1	TOTALS
No QUALS	0	1 ≤1%	3 <1%	0	3 ≤1%	3 <1%	9 2%
O LEVELS	3 ≤1%	9 3%	33 9%	22 6%	47 13%	8 2%	122 34%
A LEVELS	3 ≤1%	13 4%	25 7%	13 4%	45 12%	13 4%	112 31%
ONC OND	1 ≤1%	1 ≤1%	4 1%	1 ≤1%	3 ≤1%	1 ≤1%	11 3%
HNC HND	3 ≤1%	3 ≤1%	26 7%	10 3%	9 3%	2 ≤1%	53 15%
DIPLOMA	1 ≤1%	1 ≤1%	9 3%	3 ≤1%	9 3%	2 <1%	25 7%
DEGREE	2 ≤1%	0	6 2%	2 ≤1%	16 4%	5 1%	31 8%
TOTALS	13 4%	28 8%	106 29%	51 14%	132 36%	33 9%	363 100%



N=216
r⩾.13, p⩽.05
r⩾.17, p⩽.01
r⩾.21, p⩽.001

Figure 42 The relationships between social class, education and need for achievement for total sample (Table 31 ,p. 313)

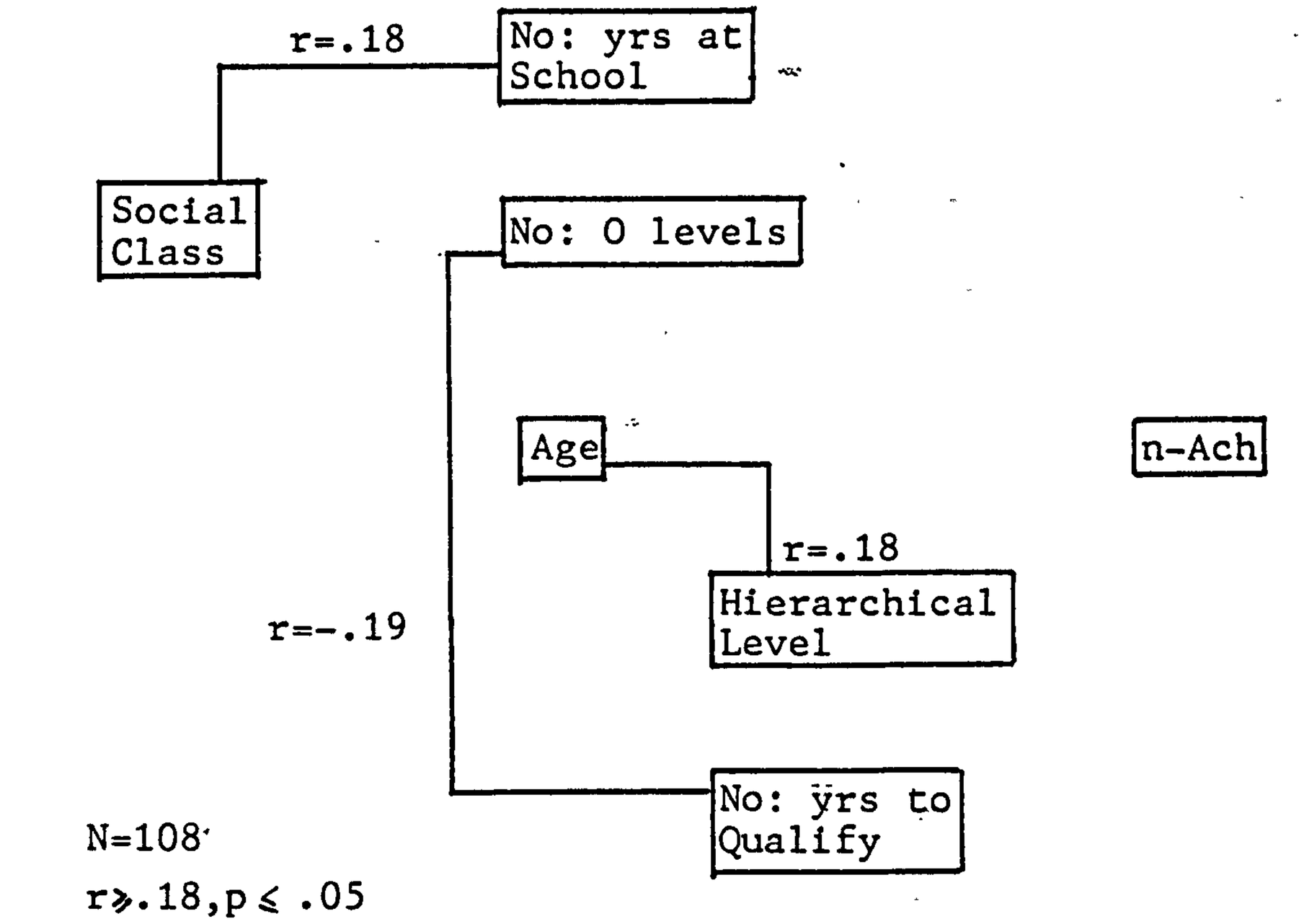


Figure 43 Relationships between educational variables; n-Ach, managerial level and social class for those with O levels only (Table 41, p. 338)

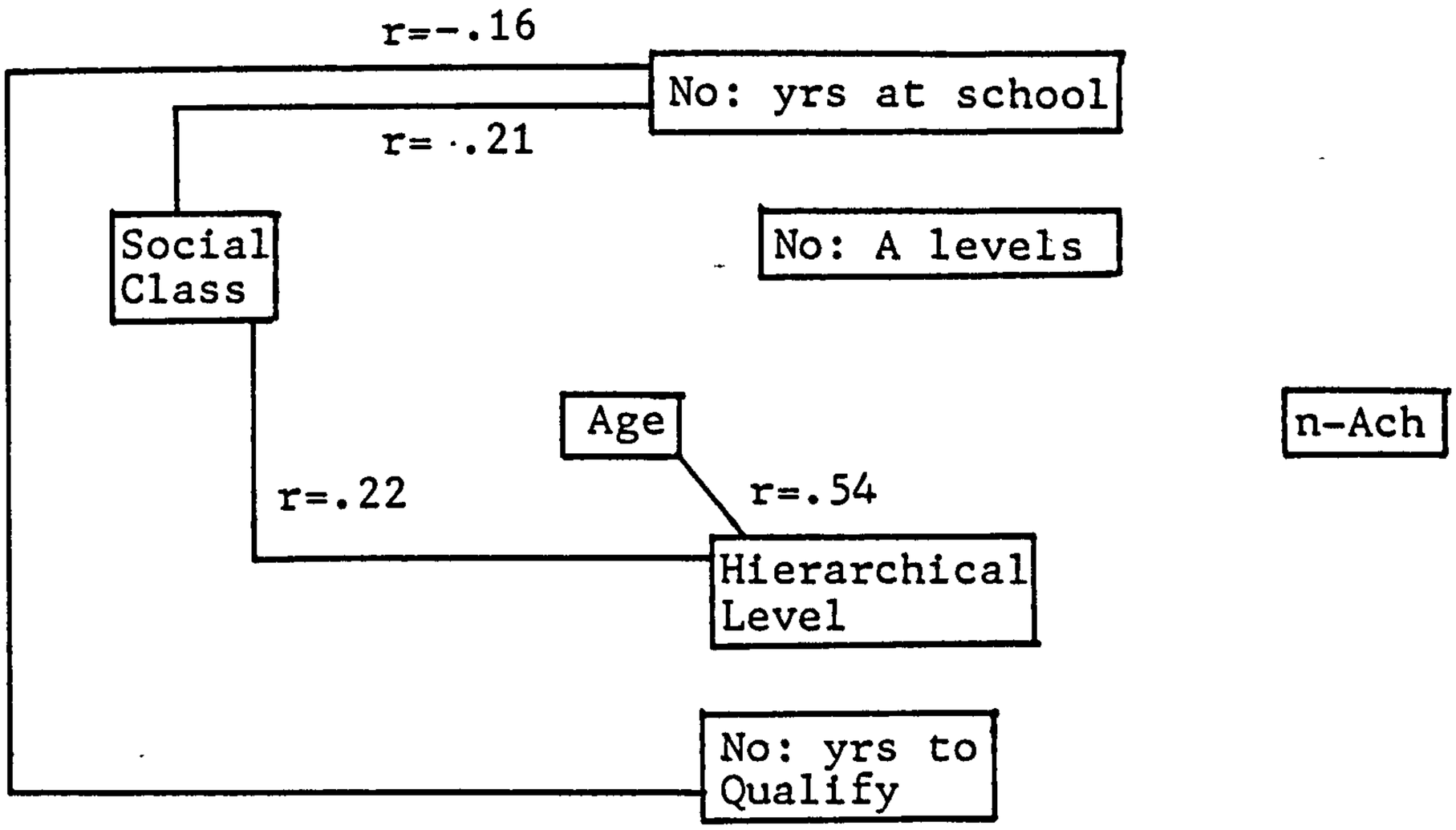


Figure 44 Relationships as indicated in Figure 43 with social class for those with A levels only (Table 42, p. 338)

Table 41 Spearman Rank-order correlation co-efficients, major educational variables, O level only group.

		1	2	3	4	5	6	7
No: yrs. in secondary school	1							
No: yrs to qualify	2	07						
No: O levels	3	01	-19					
Age	4	01	-01	13				
Social Class	5	18	-03	17	04			
Need for achievement	6	05	-01	09	10	-05		
Adjst. Management level	7	-09	03	-15	18	-15	16	

N= 108

r ≥ .18, p ≤ .05

Table 42 Spearman Rank-order correlation co-efficients, major educational variables- A level only group.

		1	2	3	4	5	6	7
No: yrs. in secondary school	1							
No: yrs. to qualify	2	-16						
No: A levels	3	-04	-16					
Age	4	-05	10	-08				
Social Class	5	21	-09	-12	14			
Need for achievement	6	-10	-12	-03	-03	03		
Adjst. Management level	7	-04	-21	12	54	22	03	

N= 105

r ≥ .20, p ≤ .05

Table 43 Distribution of sample by Social Class and sector of employment

SECTOR OF EMPLOYMENT	SOCIAL CLASS						
	5	4	3M	3N	2	1	TOTALS
PRIVATE PRACTICE	5 1%	9 2%	39 10%	24 6%	62 17%	22 6%	161 42%
GOVERNMENT	3 ≤1%	6 2%	34 9%	12 3%	32 9%	4 1%	91 24%
CONTRACTING	5 1%	14 4%	36 10%	17 5%	43 12%	8 2%	123 34%
TOTALS	13 2%	29 8%	109 29%	53 14%	137 38%	34 9%	375 100%

χ^2 = 14.15 n.s.

Occupational Structuring - RICS versus IQS

Tables 44 and 45 indicate the type of school attended and highest qualification obtained by professional association. A number of the cells in Table 43 have frequencies below 5 and χ^2 results should be treated with caution.

Table 44 Type of school attended by professional association

PROF: QUAL:	TYPE OF SCHOOL		
	STATE	PUBLIC/PRIVATE	TOTALS
RICS	122 31%	40 10%	162 41%
IQS	148 38%	26 6%	174 44%
RICS & IQS	50 13%	9 2%	59 15%
TOTALS	320 81%	75 19%	395 100%

χ^2 = 5.81 $p \leq .05$

Table 45 Distribution of sample by highest qualification and professional association

	HIGHEST QUALIFICATION							
	NO QUALS	O LEVELS	A LEVELS	ONC OND	HNC HND	DIP	DEG	TOTALS
RICS	4 1%	65 16%	56 14%	2 ≤1%	4 ≤1%	12 3%	16 4%	159 39%
IQS	5 1%	51 13%	46 11%	9 2%	52 13%	7 2%	14 3%	184 45%
RICS & IQS	1 ≤1%	20 5%	22 5%	1 ≤1%	2 ≤1%	9 2%	7 2%	62 16%
TOTALS	10 2%	136 34%	124 30%	12 3%	58 15%	28 7%	37 9%	405 100%

χ^2 66.95 $p \leq .001$

Sector of Employment - Private Practice, Government, Contracting

Table 46 presents highest qualifications obtained by section of employment. A number of cell frequencies are below 5 and χ^2 results should be treated with caution.

Table 47 presents the internal structuring of practice settings by sector of employment. A functional structure represents professional settings that are divided according to pre and post contract services. A number of cell frequencies are below 5 and χ^2 results should be treated with caution. Organisational size appears to have a confounding effect.

Table 46 Distribution of sample by highest qualification and sector of employment

SECTOR OF EMPLOYMENT	HIGHEST QUALIFICATION							
	NO QUALS	O LEVELS	A LEVELS	ONC OND	HNC HND	DIP	DEG	TOTALS
PRIVATE PRACTICE	5 1%	71 18%	54 13%	1 ≤1%	9 2%	14 4%	21 5%	175 43%
GOVERNMENT	2 ≤1%	37 9%	26 6%	6 2%	15 4%	6 2%	8 2%	100 25%
CONTRACTING	3 ≤1%	28 7%	44 11%	5 1%	34 8%	8 2%	8 2%	130 32%
TOTAL	10 1%	136 34%	124 30%	12 3%	58 16%	28 8%	37 9%	405 100%

$\chi^2 = 43.24 \quad p \leq .001$

Table 47 Distribution of total sample by sector of employment and structuring of practice setting

INTERNAL ORGANISATIONAL COMPLEXITY	SECTOR OF EMPLOYMENT			
	PRIVATE PRACTICE	GOVERNMENT	CONTRACTING	TOTALS
NO TEAM STRUCTURE	61 19%	1 ≤1%	7 2%	69 21%
TEAM STRUCTURE	35 11%	2 ≤1%	20 6%	57 17%
FUNCTIONAL TEAM STRUCTURE	14 4%	0	5 2%	19 6%
SECTION STRUCTURE	6 2%	12 4%	50 16%	68 22%
FUNCTIONAL SECTION STRUCTURE	8 3%	74 23%	24 8%	106 34%
TOTALS	124 39%	89 27%	100 34%	319 100%

($\chi^2 = 251.74 \quad p \leq .001$)

Hierarchical level

Tables 48 and 49 present highest qualifications obtained by raw hierarchical level and adjusted hierarchical level. A number of cell frequencies are below 5 and χ^2 results should be treated with caution.

Figure 45 illustrates a number of findings by adjusted hierarchical level and age.

Table 48 Distribution of sample by raw hierarchical level and highest qualification obtained

HIGHEST QUALIFICATION	RAW HIERARCHICAL LEVEL				
	TOP 1	2	3	BOTTOM 4	TOTALS
NO QUALS	6 2%	2 ≤1%	2 ≤1%	0	10 3%
O LEVELS	58 14%	18 5%	49 12%	11 3%	136 34%
A LEVELS	31 8%	20 5%	49 12%	23 6%	123 30%
ONC OND	3 ≤1%	4 1%	4 1%	1 ≤1%	12 3%
HNC HND	12 3%	11 3%	20 5%	15 4%	58 14%
DIPLOMA	5 1%	5 1%	8 2%	10 3%	28 7%
DEGREE	2 ≤1%	4 1%	15 4%	16 4%	37 9%
TOTALS	117 29%	64 16%	147 36%	76 19%	404 100%

$\chi^2 = 56.78 \quad p \leq .001$

Table 49 Distribution of sample by adjusted hierarchical level and highest qualification obtained

HIGHEST QUALIFICATION	ADJUSTED HIERARCHICAL LEVEL			
	LOWER	MIDDLE	TOP	TOTAL
NO QUALS	0	5 1%	5 1%	10 2%
O LEVELS	11 3%	79 20%	44 11%	134 34%
A LEVELS	30 8%	62 16%	27 7%	119 30%
ONC OND	2 ⩽1%	7 2%	3 ⩽1%	12 3%
HNC HND	21 5%	22 6%	15 4%	58 15%
DIPLOMA	13 3%	10 3%	4 1%	27 7%
DEGREE	14 4%	20 5%	2 ⩽1%	36 9%
TOTALS	91 23%	205 52%	100 25%	396 100%

$\chi^2 = 48.62 \quad p \leqslant .001$

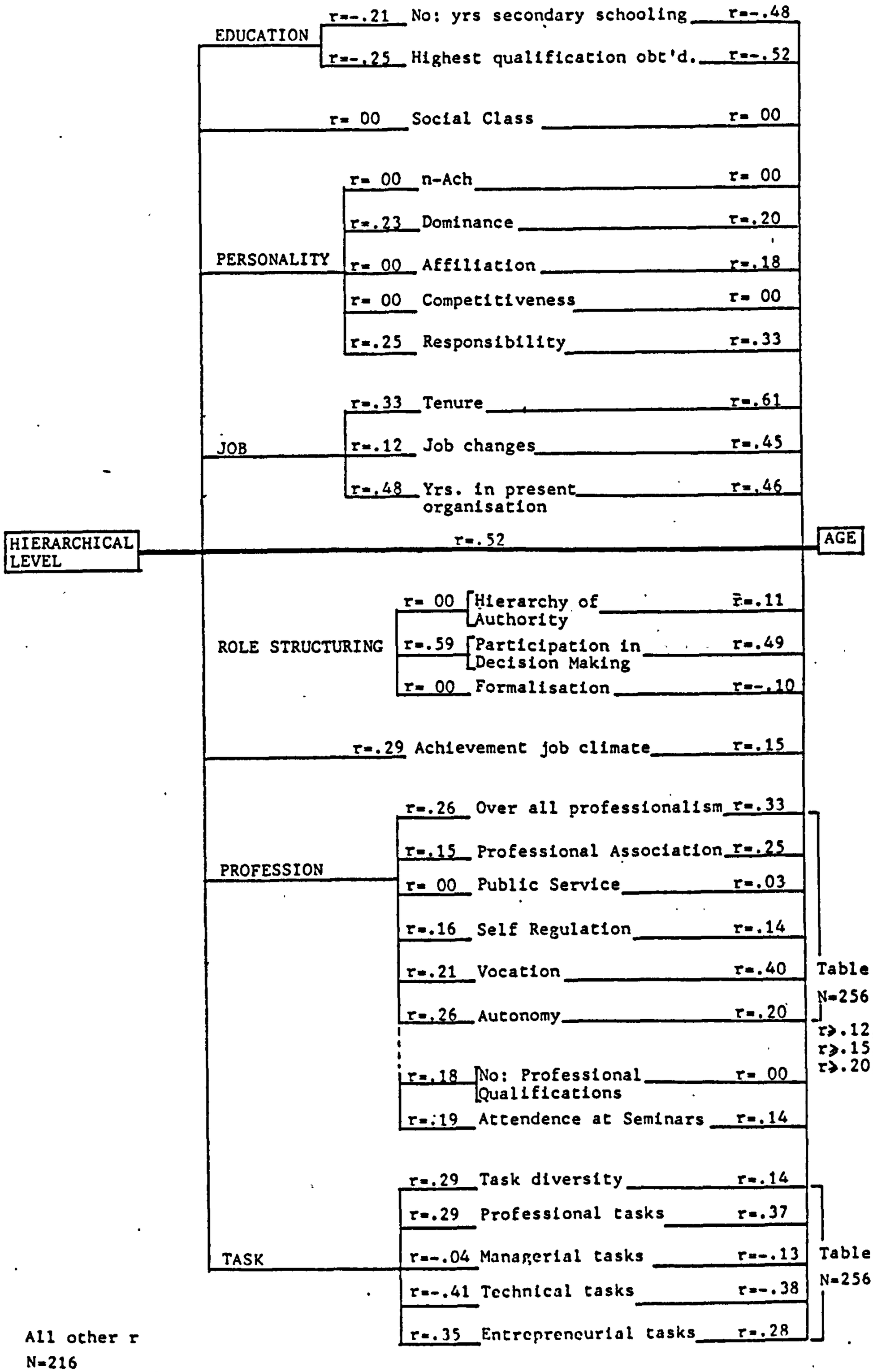


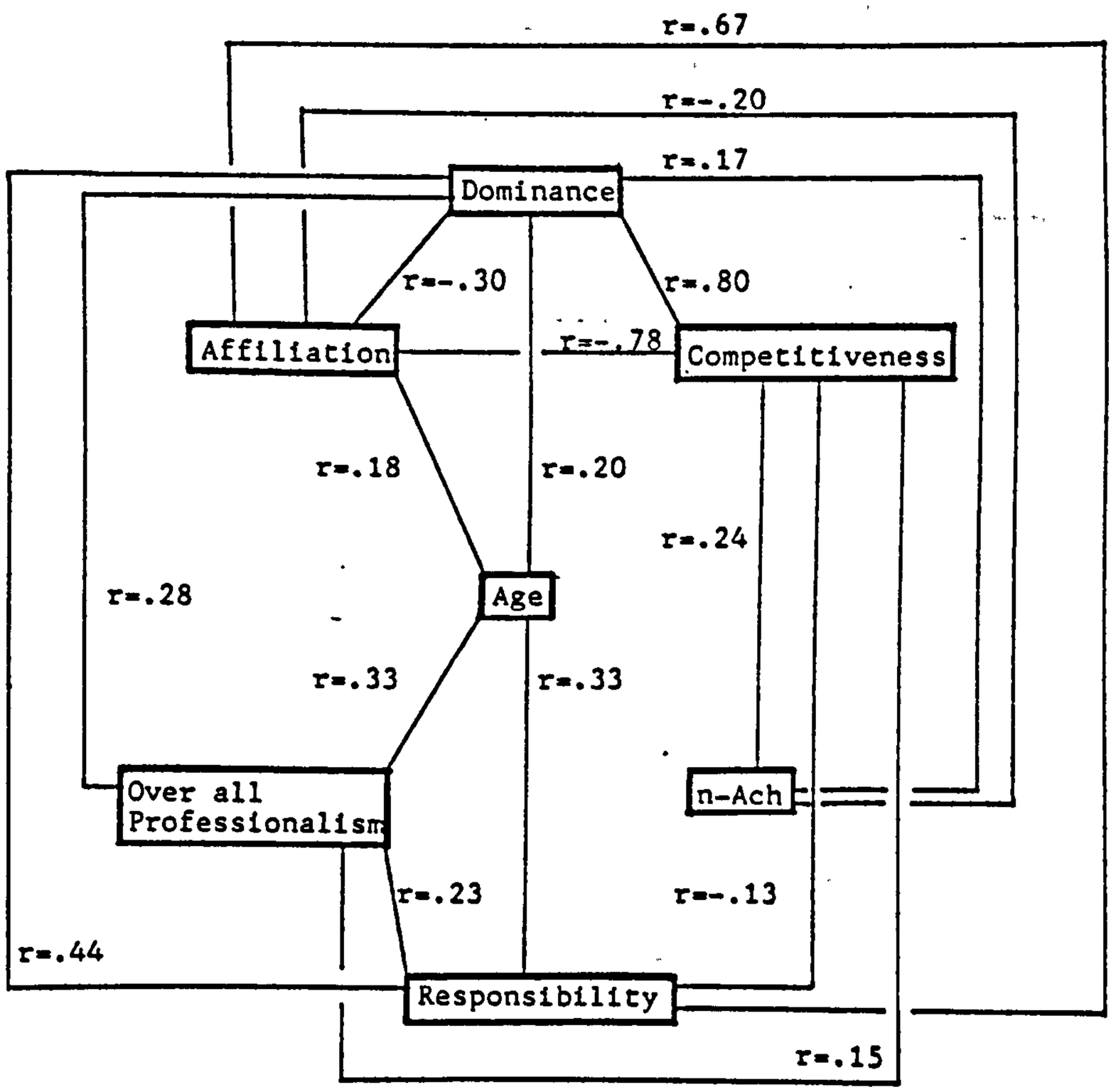
Figure 45 Relationships between major variables, hierarchical level and age

Professionalism

Figure 46 illustrates the relationship among personality dimensions and overall professionalism. Figure 47 sets out the relationships between the separate dimensions of professionalism.

Figure 48 illustrates the relationship between reported professional behaviour as measured by attendance at seminars and overall professionalism.

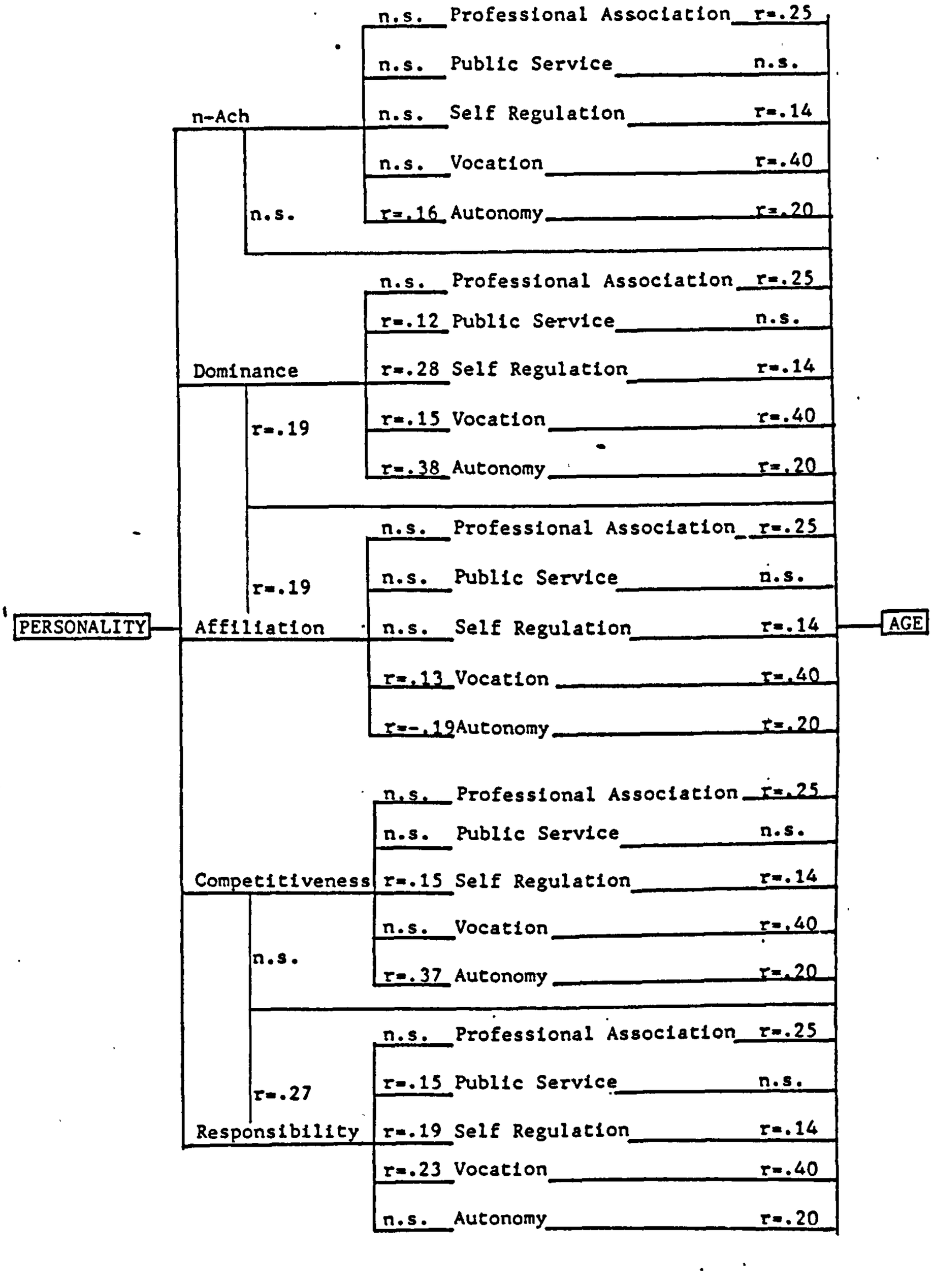
Figures 49 and 50 illustrate the influences of structuring of role and task variables on dimensions of professionalism.



N=216

r ⩾ .13, p⩽ .05
r ⩾ .17, p⩽ .01
r ⩾ .21, p⩽ .001

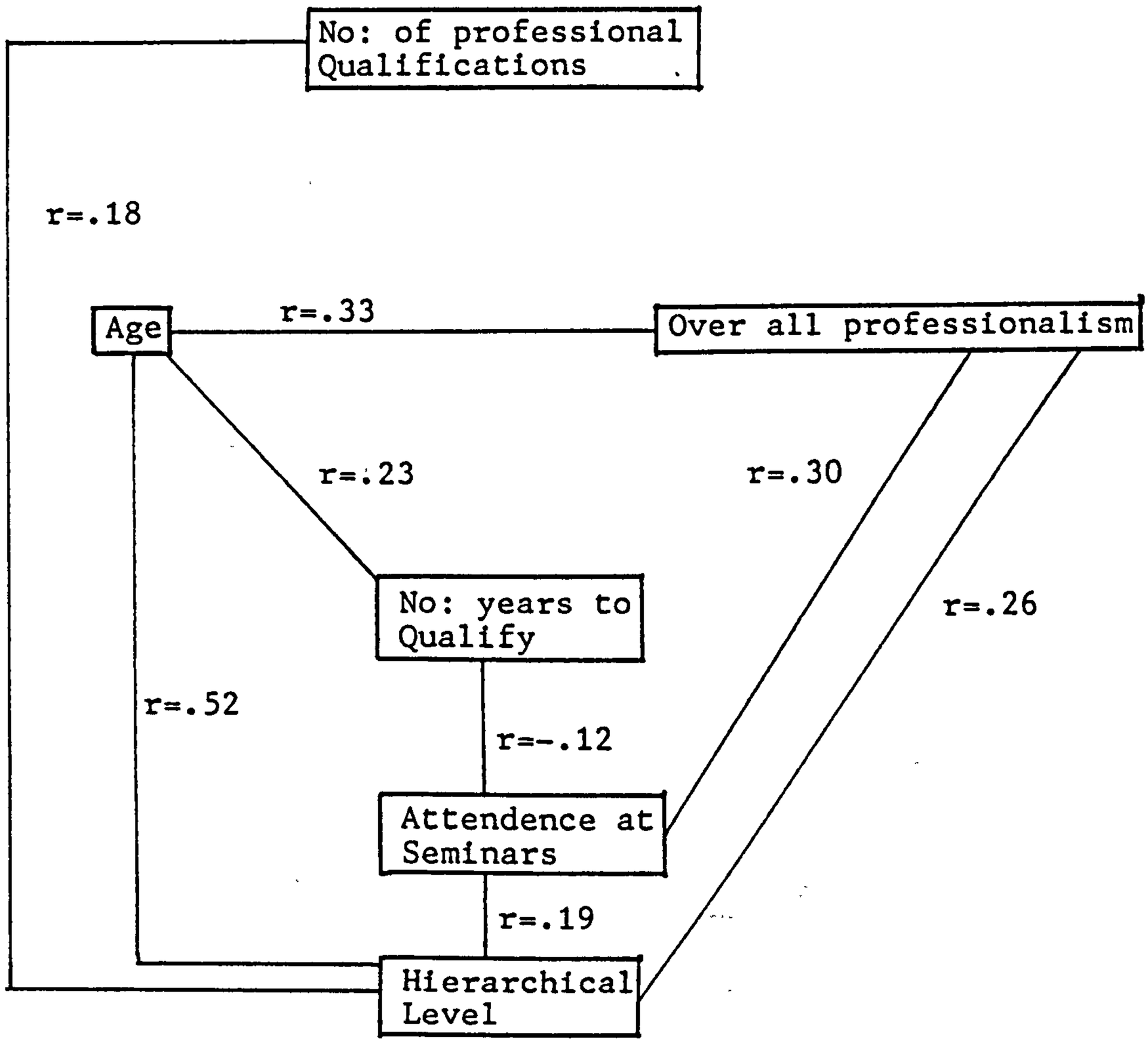
Figure 46 The relationship between personality dimensions, over all professionalism and age (Table 31, p.313)



N=256

$r \geq .12, p < .05$
$r \geq .15, p < .01$
$r \geq .20, p < .001$

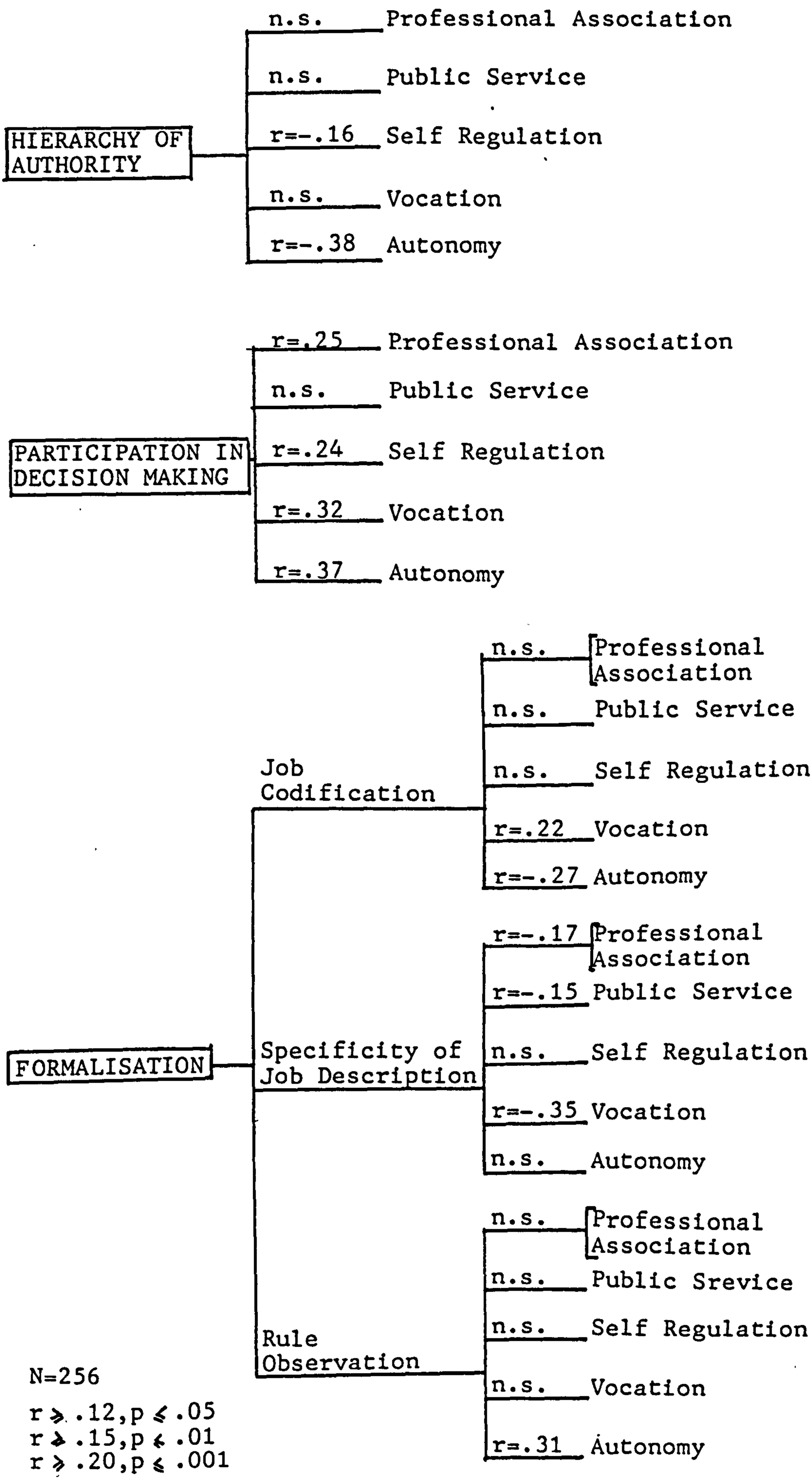
Figure 47 The relationship between personality dimensions, age and dimensions of professionalism (Table 32,p.314)



N=216

$r \geqslant .13, p \leqslant .05$
$r \geqslant .17, p \leqslant .01$
$r \geqslant .21, p \leqslant .001$

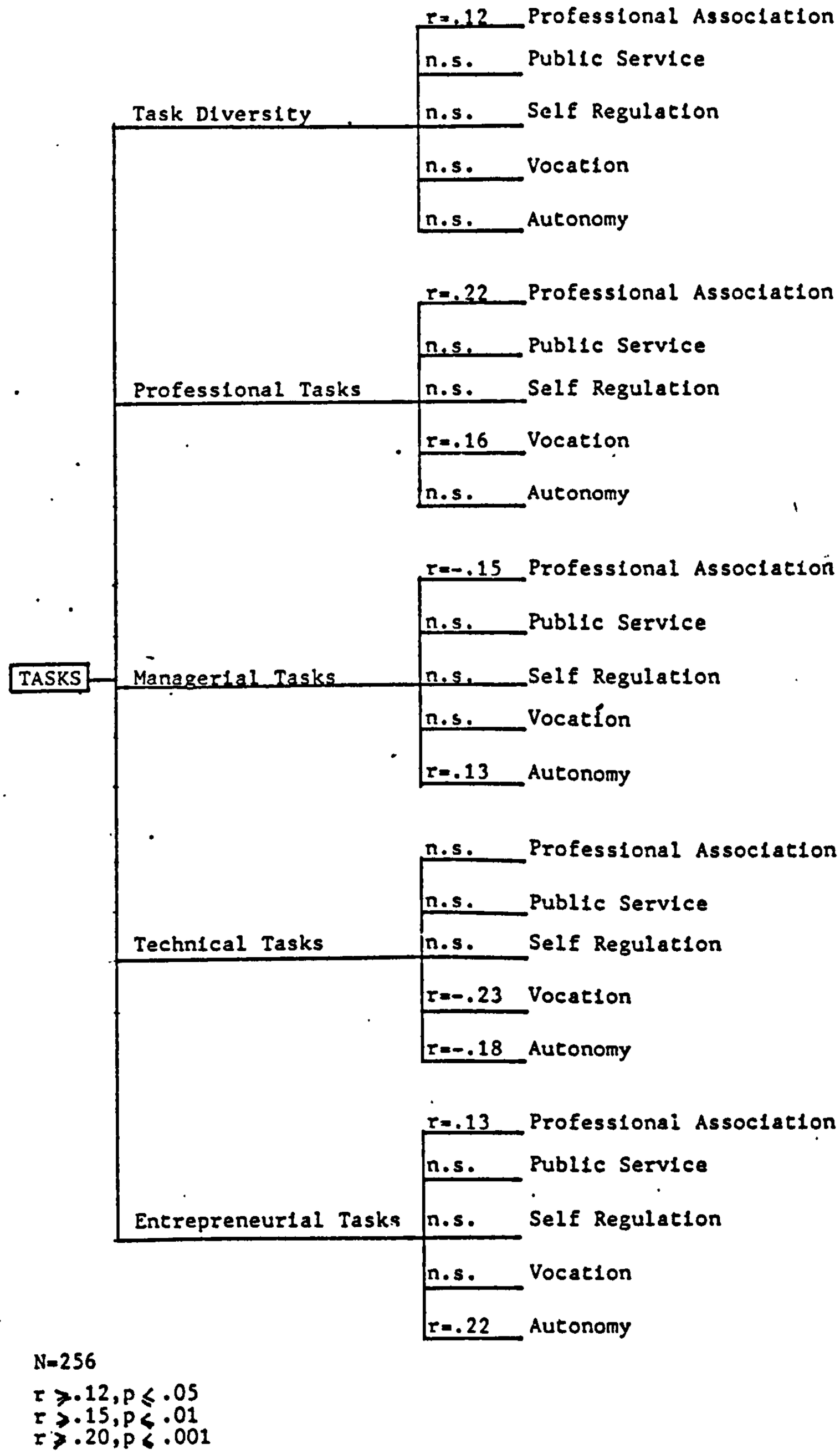
Figure 48 Relationships between attendence at professional seminars, extent of professional qualification, age, hierarchical level and over all professionalism (Table 31,p.313)



N=256

$r \geq .12, p \leq .05$
$r \geq .15, p \leq .01$
$r \geq .20, p \leq .001$

Figure 49 Relationships between degree of structuring on role positions and dimensions of professionalism (Table 32,p.314)



N=256
$r \geq .12, p \leq .05$
$r \geq .15, p < .01$
$r \geq .20, p < .001$

Figure 50 Relationships between tasks variables and dimensions of professionalism (Table 32,p.314)

Role structuring and task variables

Figure 51 illustrates the relationship between role structuring and task variables.

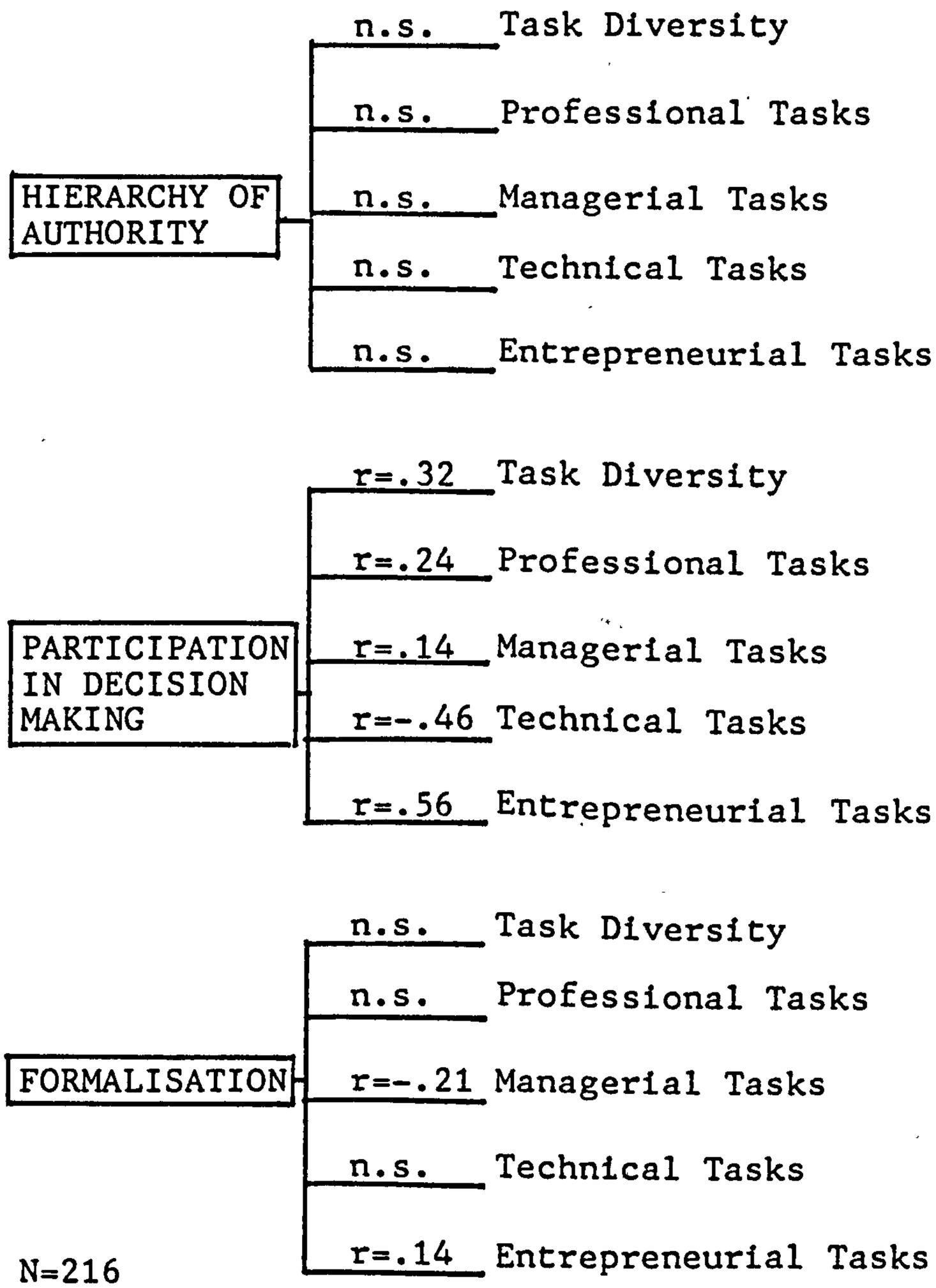


Figure 51 Relationships between degree of structuring on role positions and task variables (Table 31,p.313)

Route to Qualification

Figure 52 presents the differing routes quantity surveyors have taken to reach corporate membership of their professional associations.

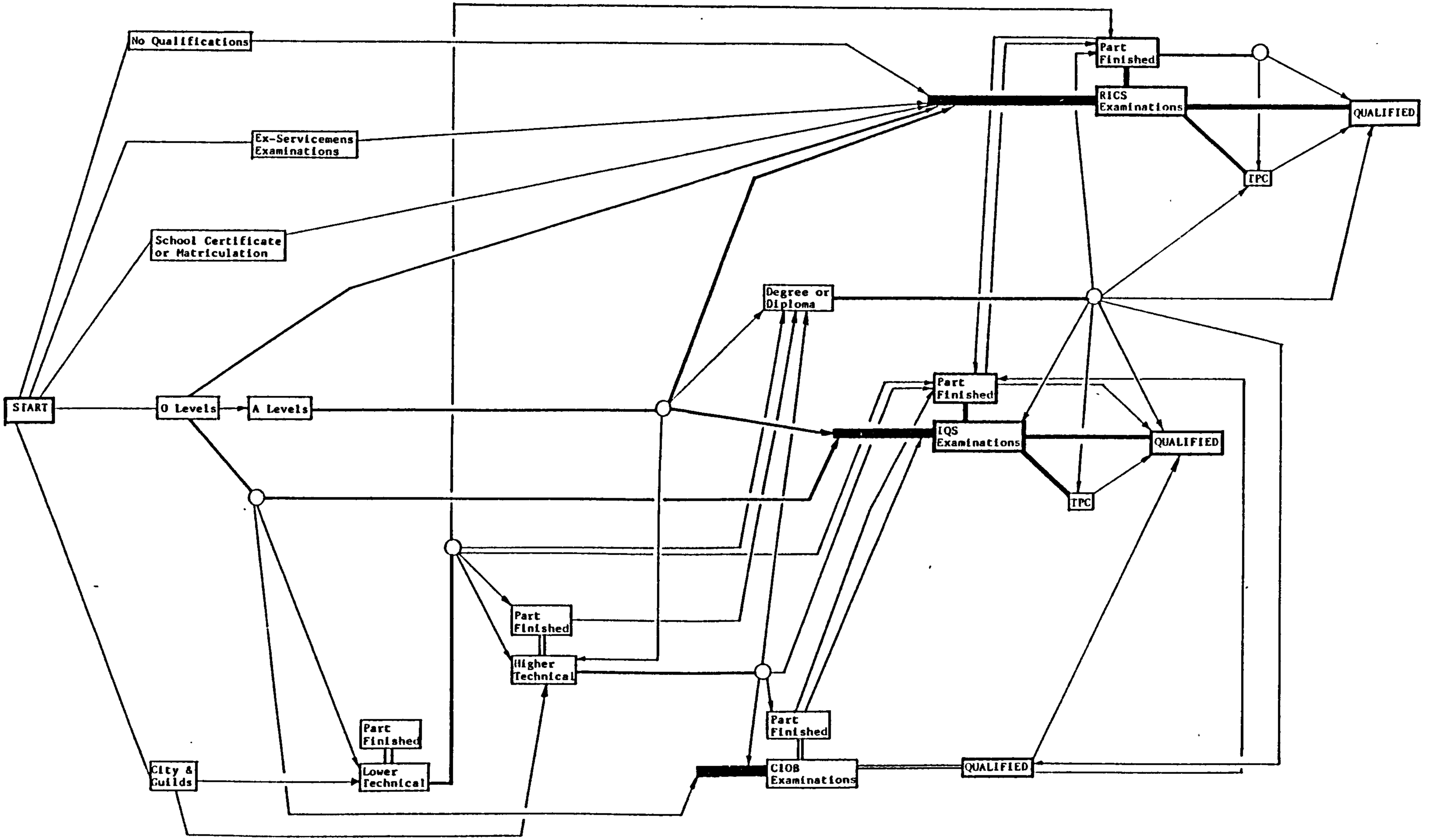


Figure 52 The Complexity of the Qualifying Process

Chapter Summary

The chapter on results has established the characteristics of the total sample together with relationships among the major variables proposed in the research paradigm. The following chapter will analyse and discuss the relationships that have been established. The discussion will also synthesise results from the present study together with literary evidence to indicate the nature of professionalism in Quantity Surveying.

CHAPTER 9

ANALYSIS AND DISCUSSION

SUMMARY OF FINDINGS

The following section summarises and interpretes the statistically significant relationships from the Results chapter (Chapter 8). Findings are presented within the sections used to explore the research paradigm. Subsequently, the results will be synthesised within the theoretical framework provided by the Individual, Organisational and Occupational perspectives.

Family influences

There is a relationship between need for achievement, as measured by Fineman's(1975a) WPQ, and the level of educational attainment (Figure 34,p. 315).

Quantity surveyors from the higher social classes have spent longer at school than those from the lower social groupings. However, the educational standing of the sample is low, 64% (the majority) were educated to O and A level standards only. A minority of 16% have degrees or diplomas. Furthermore, the older members of the occupation have spent less time at school and have less qualifications than younger recruits (Figure 42, p. 336).

Quantity surveyors from the higher social classes have taken less time to qualify than those from the lower classes (Figure 31,p.313). This is in agreement with Coates(1977) who found that those quantity surveyors from backgrounds where the father's occupation was classified as manual took longer to qualify as corporate members than those whose backgrounds were intellectual or medial.

Occupational structuring- the IQS versus the RICS

Need for achievement discriminates between members of the two institutes(Table 33,p.317). The relationship is, however, in the reverse direction than was expected. The rank order, from highest to lowest, is RICS members, dual membership and IQS members. Crockett(1962) and McClelland(1967) have noted that choice of occupation and perceived prestige of that occupation are related to n-Ach. The present results may suggest a relationship between perceived prestige of the RICS

or IQS and n-Ach.

Social class differentiates between members of the two organisations (Table 34 ,p. 317). Quantity surveyors from the higher social classes were more in evidence in the RICS than the IQS. Furthermore, social origins may have had some influence over the type of educational processes undertaken by individuals. There was a greater proportion of individuals who have attended public/private schools in the RICS than the IQS. This is consistent with an interpretation of different perceptions of prestige attached to each institute.

Different dimensions of attitudinal professionalism discriminate between members of the two institutes(Table 35 ,p. 318). The rank order, from highest to lowest, for each of the statistically significant dimensions is;

i) Belief in Professional Association- Dual membership, RICS, IQS.
ii) Belief in Self Regulation- RICS, Dual membership, IQS.
iii) Belief in Professional Autonomy- Dual membership, RICS, IQS.

These dimensions reflect aspects of occupational power.

<u>Sector of employment- Private Practice, Government, Contracting</u>

Dimensions of interpersonal orientation discriminate between individuals working in Private Practice, Government Service and Contracting. The following dimensions, rank ordered from highest to lowest, are statistically significant (Table 36 , p. 320);

i) Affiliation- Private Practice, Government Service, Contracting.
ii) Responsibility- Private Practice, Government Service, Contracting.
iii) Competitiveness- Contracting, Government Service, Private Practice.

The present findings when interpreted within the context of similar variables operating at the level of occupational structuring between the RICS and IQS indicates the importance of the organisational environment and situation currently facing the individual in determining the extent and nature

of interpersonal orientations. Interpersonal dimensions have failed to discriminate between members of the RICS or IQS, institutes that have been allied to different sides of the construction industry. The findings on affiliation and competitiveness, for contracting, can be interpreted as reflecting the more competitive environments facing those individuals working in this side of the industry. Organisational environments in contracting may increase interpersonal competitiveness and decrease affiliative tendencies. The findings on responsibility cannot be explained without reference to a possible confounding relationship with age. The rank order of decreasing average ages, between sectors, is Government Service, Private Practice and Contracting.

Dimensions of attitudinal professionalism differentiate between sectors of employment(Table 37 ,p. 320). The rank orderings,from highest to lowest,, for statistically significant dimensions are;

i) Belief in Professional Association- Government Service, Private Practice, Contracting.

ii) Belief in Professional Autonomy- Private Practice, Contracting, Government Service.

Major dimensions of reported role structuring differ significantly according to sector of employment (Table 38 ,p. 321). These are; rank ordered from highest to lowest ;

i) Hierarchy of authority- Government Service, Private Practice, Contracting.

ii) Participation in decision making- Private Practice, Contracting, Government Service.

iii) Formalisation- Private Practice, Contracting, Government Service.

The results for Government Service are in the predicted direction except for formalisation. The present study is unable to explain the higher incidence of reported formalisation in Private Practice.

Those individuals working in Contracting report higher Achievement climates whilst those in Government Service report the lowest. Furthermore, task variables also differ

significantly according to sector of employment(Table 36 , p. 320). Statistically significant results have been obtained for the following task dimensions, ranked ordered from highest to lowest;

i) Task diversity- Private Practice, Government Service, Contracting.

ii) Managerial tasks- Contracting, Government, Private Practice.

iii) Entrepreneurial tasks- Private Practice, Contracting, Government.

These are in the expected direction except for entrepreneurial tasks. The higher scoring of individuals in Private Practice on this dimension may highlight a weakness in McClelland's (1967) argument that 'professionals' are not involved in entrepreneurial role behaviour to the same extent as businessmen. This does, however, require the assumption that reported entrepreneurial task activity is related to entrepreneurial role behaviour. The present study may indicate that the work setting is forcing 'professionals' to undertake entrepreneurial role behaviour that is likely to elicit achievement striving.

There is a higher reported incidence of technical qualifications in Contracting compared to a higher incidence of degrees and diplomas in Private Practice(Table 45 ,p. 340).

Hierarchical level

There is a positive statistical relationship between the interpersonal dimensions of dominance and responsibility and hierarchical level(Figure 37 ,p. 325). These relationships are explainable partly in terms of the age variable since each is positively related with age.

There is a positive statistical relationship between the professionalism dimensions of Professional Association, Self Regulation, Vocation and Autonomy(Figure 37 ,p. 325). Age may have a mediating relationship.

Respondents report that Participation in decision making increases with organisational rank, as does achievement job climate (Figure 37 ,p. 325).

A number of statistically significant relationships emerge with task variables(Figure 37 ,p.325). Respondents report that task diversity and performance of professional and entrepreneurial tasks increase with organsiational rank. Furthermore, there is a reported higher incidence of technical tasks performed in the lower levels of the hierarchy. These relationships are in accordance with theoretical expectations.

Degree of structuring on role positions

A number of statistically significant relationships have been found with structuring of role positions and professionalism. (Figure 38 ,p.328). There is a negative statistical relationship between Hierarchy of authority, Formalisation and over all professionalism. However, over all professionalism is positively correlated with Participation in decision making. These statistical relationships may be interpreted within the context of the ability to exercise freedom of action and independant judgement. Participation in decision making is likely to increase the opportunities for independant judgement whilst the structuring variables of Hierarchy of authority and Formalisation decrease opportunities.

Achievement job climate is correlated negatively with Hierarchy of authority and correlated positively with Participation in decision making(Figure 38 ,p. 328). These may be interpreted as a function of organisational rank and sector of employment.

Need for achievement is correlated negatively with Hierarchy of authority and correlated positively with Participation in decision making(Figure 38 ,p. 328). These statistical relationships can be interpreted within the context of the ability to exercise fredom of action, personal responsibility and a potential for innovation. The lack of a statistical relationship between n-Ach and Formalisation was unexpected. Confounding variables may be present.

The reported degree of structuring on role positions has direct implications for interpersonal behaviour(Figure38 , p. 328). The following statistical relationships have been found;

i) Hierarchy of authority has a negative statistical relationship with dominance and affiliation.

ii) Participation in decision making has a positive statistical relationship with dominance, competitiveness and responsibility.

iii) Formalisation has a negative statistical relationship with dominance and responsibility.

These realtionships may be interpreted within the context of sector of employment, age and organisational rank.

Task variables

The following statistical relationships have been found with over all professionalism and task variables(Figure 39 ,p. 331).

i) A positive statistical relationship with task diversity.

ii) A positive statistical relationship with professional task activity.

iii) A negative statistical relationship with technical task activity.

iv) A positive statistical relationship with entrepreneurial task activity.

The reported relationships may be confounded by age, organisational rank and sector of employment.

The reported performance of technical task activity, by respondents, has been found to have a negative statistical relationship with n-Ach(Figure 39 ,p. 331). Contrary to expectation, the task variables of diversity, managerial, professional and entrepreneurial task activity do not have a significant relationship with n-Ach. This is surprising, especially in terms of task diversity and entrepreneurial task activity since they are expected to be at the heart of entrepreneurial role behaviour. The issue is further complicated by the fact that achievement job climate has a positive, statistically significant, relationship with reported entrepreneurial task activity. This is in accordance with theoretical expectations.

The following task variables have statistically significant relationships with interpersonal dimensions(Figure39 ,p.331).

i) Professional tasks have a positive statistical relationship with dominance and responsibility.

ii) Technical tasks have a negative statistical relationship with dominance, competitiveness and responsibility.

Age may have a confounding relationship with the foregoing. However, the relationships with professional tasks may be interpreted as indicating increased freedom of action and a sense of responsibility since the interpersonal dimensions of dominance and responsibility have a positive statistical relationship with hierarchical rank. The relationships with technical task activity may be interpreted as indicating the consequenes of heavy proceduralisation of technical tasks performed at the lower levels of the hierarchy. Technical tasks involve the measurement function and Standard Methods of Measurement. The opportunity to exercise freedom of choice, independant judgement and a sense of personal responsibility is, therefore, considerably reduced. The statistical relationship with competitiveness is difficult to explain within the context of the present analysis.

Achievement job climate

Achievement job climate has a positive statistical relationship with over all professionalism(Figure 40,p.333). Age and hierarchical level may, however, have confounding relationships with these variables. Furthermore, achievement job climate is correlated positively with n-Ach. This is in accordance with theoretical expectations.

Achievement job climate has positive statistical relationships with dominance, competitiveness and responsibility(Figure 40, p. 333). These are in accordance with theoretical expectations. However, contrary to expectations from the literature review there is a lack of statistical relationship with affiliation.

Organisational size

Organisational size has been found to have the following statistical relationships;

i) A negative relationship with task diversity.

ii) A positive relationship with the number of hours spent at professional seminars ($r=.20, p \leq .001$).

iii) A negative relationship with Participation in decision making and Formalisation($r=-,22, r=-.24$ respectively, $p \leq .001$, Table 32 ,p. 314).

OTHER FINDINGS

Professionalism

Attitudinal professionalism has a complex statistical relationship with personality dimensions and the confounding variable of age (Figure 46,p. 345). Professionalism appears to involve an element of interpersonal competition. As Table 32 ,p. 314 indicates this appears to operate through two dimensions. First, the dimension of Self Regulation ($r=.15, p \leqslant .01$) and Autonomy($r=.37, p \leqslant .001$). The former has a negligible correlation with age whilst the latter has a significant correlation with this variable($r=.20, p \leqslant .001$). The relationship with competitiveness may indicate that individuals require a degree of interpersonal competition in order to muster and utilise resources through the professional associations and commence or uphold status in relation to other occupations and the public at large. An element of interpersonal competition would create the occupational 'atmosphere' essential for a closing of ranks to foster self protection and enhance the impetus for professional and occupational autonomy.

Need for achievement has a postive statistical relationship with professionalism. As Table 32 (p. 314) indicates this operates through the professionalism dimension of Autonomy. In part, this would suggest the importance of the organisational setting. The Autonomy dimension is strongly related to a number of organisational variables including hierarchical rank, sector of employment and structuring of role positions.

A number of significant relationships have emerged between structuring of role positions, task variables and dimensions of professionalism. Any meaningful relationships are confounded by correlations with hierarchical position and age. However, the importance of the organisational setting and role position, within the organisation, has been established for influencing attitudinal professionalism.

Tasks

The research study has found a number of statistically significant relationships between structuring of role positions and task variables(Figure51 ,p.350). The most important findings to emerge are the positive correlations between Participation in decision making and responses on task diversity, professional and managerial tasks. A stronger statistical relationship has been found between entrepreneurial task activity and Participation in decision making. Participation in decision making is not statistically related to the technical aspects of Quantity Surveying.

The statistical relationship between reported Formalisation and managerial and entrepreneurial task activity is a confounded relationship. In comparing Tables 31 and 32 (pps313 to 314) there is a lack of consistency between correlation co-efficients.

Need for achievement

Need for achievement has a negative statistical relationship with affiliation and correlates positively with dominance and competitiveness. Need for achievement is not statistically related to responsibility. A number of points are worthy of consideration. First, the negative relationship with affiliation is consistent with theoretical deliberations. Second, the positive relationship with interpersonal competion cannot be explained on the basis of theory. Need for achievement relates to competing against internalised standards of excellence and is supposed to have no interpersonal competitive element. Jung(1978) has raised this inadequacy in achievement motivation theory. Third, the positive statistical relationship with dominance was not expected from theory. The literature review suggested that n-Ach and dominance, although occuring together, were independant. Furthermore, both variables are significantly correlated with achievement climate. The present study within the constraints of the analysis, is unable to unravel the complexity of this relationship. Fourth, the lack of statistical relationship with responsibility cannot be explained. A sense of responsibility is fundamental to McClelland's(1967)

model of achievement motivation. Lastly, Gynther et al(1962) discovered no statistical relationship between n-Ach(as measured by the EPPS) and any of the interpersonal dimensions of personality measured by the ICL. The present study would disagree with their results. Furthermore, Gynther et al have assumed that the independence of the n-Ach and interpersonal variables lends support to the fact that the former is specifically restricted to human drives whilst the latter is restricted to human behaviour. The present evidence would suggest this assumption is questionnable. However, the confounding variable of achievement job climate may be affecting this statistical relationship.

A SYNTHESIS AND RE-APPRAISAL

Introduction

The final section brings together the diverse findings from each of the sections used to explore the paradigm,together with other findings from the study and the literature survey,to provide a picture of professionalism in Quantity Surveying within the original framework of the Individual, Organisational and Occupational levels of analyses.

The individual perspective

The present analysis would indicate that the demographic characteristics of individuals that have entered Quantity Surveying are diverse. They have come from differing social backgrounds, however, two main groups emerge. Approximately 43% are from Social Class 3 (skilled manual and non-manual occupations) and a further 36% from Social Class 2 (Intermediate occupations). Furthermore, they have undertaken different educational processes and different routes to qualification. A number of compensatory mechanisms appear to be operating on individual differences to give an apparent look of homogeneity on certain of the major variables.

1. Social class differences are not emerging in terms of educational achievement. Quantity surveyors,across the social spectrum, appear to have attained similar academic standards even though those from the higher

social classes have remained at school longer to reach this standard.

2. The sample is predominantely state educated with only 19% having attended public/private schools.
3. Qualified quantity surveyors are, in general, not educated to university educational standards prior to corporate membership of professional associations although this is becoming more common with new recruits.
4. The demographic variables of social class and birth order have failed to differentiate between individuals on interpersonal dimensions and need for achievement. However, no distinction was made in birth order to differentiate between the sex of siblings. This could account for the lack of any statistical relationship. Furthermore, quantity surveyors are, on average, high need achievers and exhibit a wide range of achievement motivation. Table 50 presents average scores on Fineman's(1975a) WPQ across a number of samples, quantity surveyors rank fourth.
5. Social class differences emerge in terms of time taken to qualify. Social class has no discriminating power in terms of educational attainment but quantity surveyors from the higher social classes remained at school longer. Those from the lower social classes probably entered the work force earlier. The research evidence from the present study suggests it is more a question of temporal sequence rather than ability. However, the conclusion is only tentative since the educational processes within Quantity Surveying are complex.
6. The routes taken to qualify as corporate members of the institutes are diverse. They differ in terms of academic requirements, time involvement and demands on ability.

The foregoing indicates that the environmental influences present in the organisational and occupational milieu are potential sources of variance that are able to equalise the diversity amongst individuals.

Table 50 Comparison of WPQ data from Fineman and present study
Source: Male (1984)

	N	MEAN	RANGE	S.D.
Middle managers in NHS	21	12.7	5-19	N.A.
	23	12.7	7-20	N.A.
	24	11.56	4-17	N.A.
	23	10.3	4-18	N.A.
Managers in High St. shops	74	11.4	6-20	N.A.
Applicants for graduate training scheme-engineering	226	14.3	N.A.	3.0
Middle and senior managers in large confectionary and food manufacturer	336	14.0	4.23	3.43
Plant managers	89	11.04	N.A.	4.05
Managers on post experience courses	350	15.0	N.A.	3.24
QUANTITY SURVEYORS*	429	13.91	2-23	3.41

* Quantity surveyors rank fourth in the above Table.

The organisational perspective

Major linkages have been established between sector of employment and organisational variables of task, hierarchical level, organisational size and achievement climate. The relationships are complex and it is beyond the scope of the present study to unravel the diverse relationships that exist. However, as Figure 53 indicates, the implications of these variables on professionalism are important. Evidence from the present study suggests that sector of employment and organisational size are jointly related to the degree of structuring on organisational roles and the diversity and types of tasks undertaken by individuals. Role structuring and task variables are, in turn, either directly or indirectly, through the achievement climate reported and perceived by individuals, related to the degree of professionalism exhibited by individuals. A number of points have emerged from the analysis.

i) It is wrong to consider professionalism as a single dimension. The present study reinforces the work of Bartol(1979), Hall(1968, 1969) and Schriesheim(1978) in highlighting the multi-dimensional nature of the construct. Differing dimensions have been found to vary according to sector of employment and hierarchical rank. Furthermore, in the present study age has been found to consistently relate to over all professionalism and each of the separate dimensions except Belief in Service to the Public. This latter dimension has been found to have no discriminating ability in terms of sector of employment, hierarchical rank or age.

ii) The importance of the separate dimensions is further highlighted in the case of those employed in Government Service. These individuals are employed in highly structured work settings, they report less involvement in the direct affairs of the organisation and are restricted by direct supervision. The result has been reported perceptions of low achievement climate in Government organisations. The consequence, in terms of attitudinal professionalism has been a reported

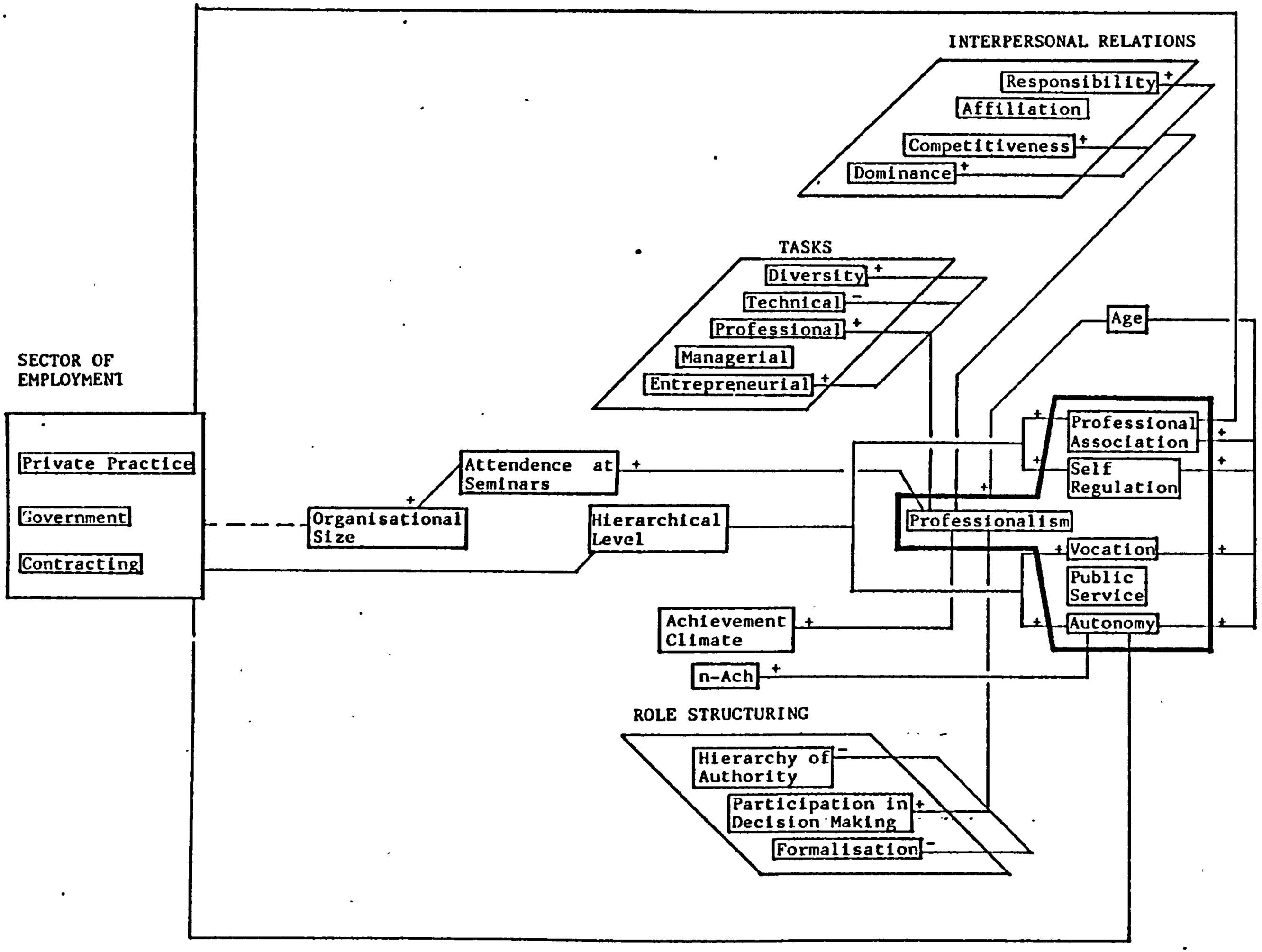


Figure 53 Major relationships established between sector of employment, role variables, hierarchical level, personality variables and attitudinal professionalism.

increased use of the professional association as a major source of reference in comparison to other sectors of employment. This explanation is, however, confouded by an increase in the average age of those employed in Government(an average of 41.6 years in Government Service as compared to 40.2 years in Private Practice and 36.4 years in Contracting). Professional Association as a Source of Reference is highly correlated with age ($r=.25$, $p \leq .001$). In contrast with an increase in the foregoing dimension, those in Government Service scored less on the attitudinal dimension of Professional Autonomy.

iii) Attendence at professional seminars (or CPD) is directly related to the degree of professionalism reported by individuals. It is also directly related to hierarchical level. Attitudinal professionalism, therefore, has a direct statistical relationship with reported occupational behaviour.

iv) The relationship of personality dimensions to professionalism is complex within an organisational setting. The interpersonal dimensions of dominance, competitiveness and responsibility, although having positive statistical relationships with professionalism cannot, at the present time,be considered to be representative of reported interpersonal behaviour patterns associated with the construct. They are highly correlated with age, achievement climate and role variables. The dimension of need for achievement has no direct statistical relationship with over all professionalism although it has a positive correrlation with Professional Autonomy. Confounding variables are,therefore, highly possible.

v) Attitudinal professionalism is stronly and positively correlated with task, role structuring and high achievement climates related to senior managerial levels. Those tasks consistently reported by respondents to be undertaken by senior management, namely; divesity, professional and entrepreneurial task activity are

statistically related to Professional Association as a Source of Major Reference and Professional Autonomy. Furthermore, the dimension of Belief in Vocation is positively related to professional task activity. An increase in technical tasks is, however, related to a low Belief in Professional Association as a Source of Major Reference and Sense of Vocation (Table 32,p. 314) Technical tasks are invariably undertaken by lower management and younger surveyors. Viewed from another direction the dimensions of Professional Association, Autonomy amd Self Regulation are power dimensions within professionalism. They may increase a sense of vocation for senior managers who are involved in the prestigious tasks of the occupation. A high incidence of technical tasks, the more mundane aspects of Quantity Surveying, may decrease a sense of vocation and desire to be involved with occupational activities outside organisational life.

The individual and organisational aspects of the framework have been explored. A number of important issues from each of these areas will be further discussed in explorations at the occupational level.

The occupational perspective

Two issues are important for the present discussion. First, the effects of occupational structuring, pre-amalgamation of the RICS and IQS. Second, the consequences for the post-amalgamation RICS.

Pre-amalgamation occupational structuring

Figure54 summarises the major relationships established in the present study.

The professional associations of the RICS and IQS were effectively recruiting indviduals from two different aspects of the social structure. The RICS attracted a higher proportion of individuals from Social Class 1 (Professional and Managerial) and Social Class 2 (Intermediate occupations)- 53% - compared to the IQS which attracted 37% from these groups. Furthermore, at the lower end of the social scale

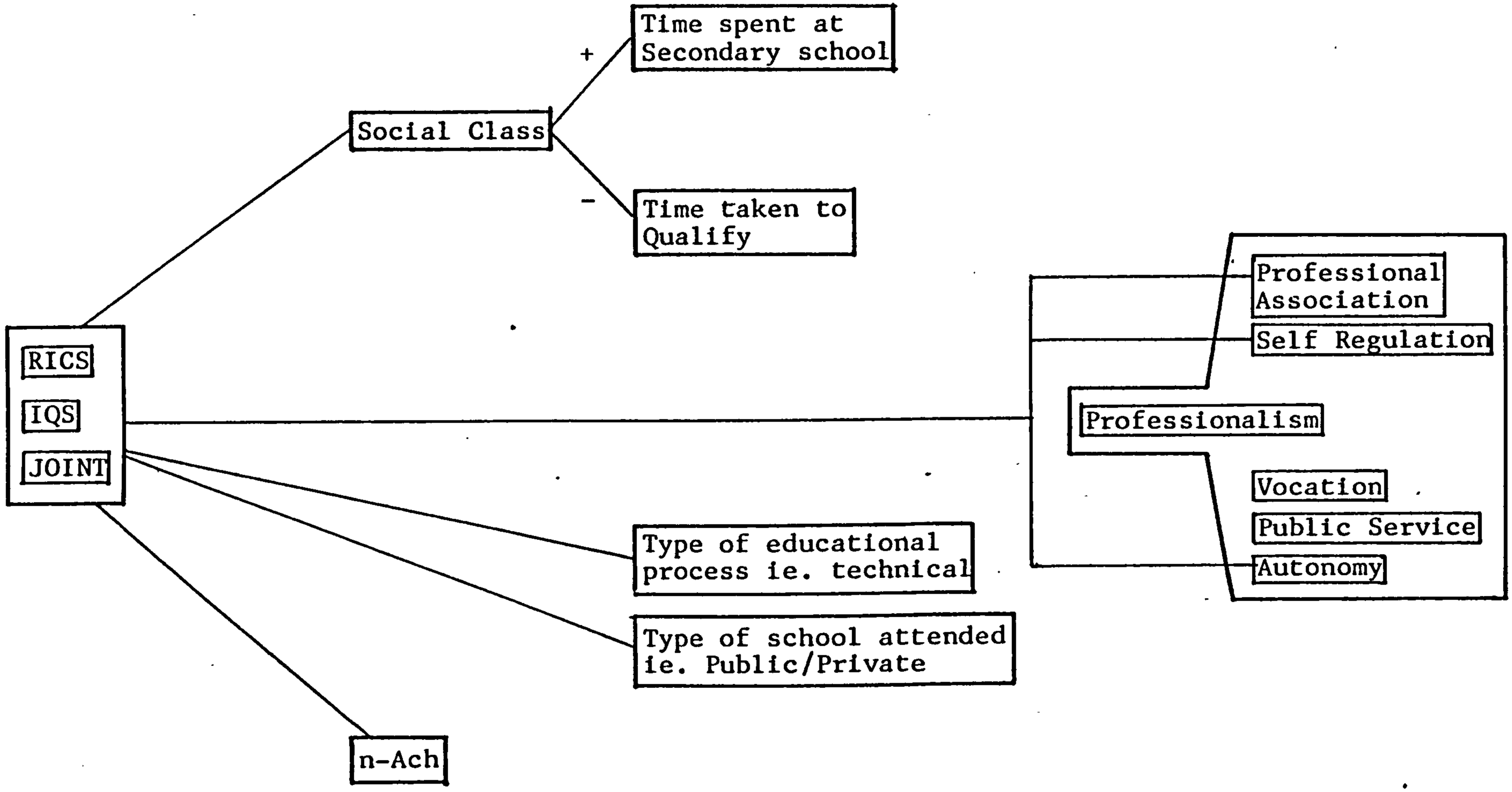


Figure 54 Major relationships established with occupational structuring

the RICS attracted 7% from Social Classes 4 and 5 (unskilled and semi skilled) whilst the IQS attracted 15% for the same groupings. In terms of the type of school attended the RICS attracted 25% of those who had been either to public or private school whilst the IQS had attracted 15% (this ignores those individuals who have joint membership of the institutes in both cases).

Those in the upper and middle classes, who have probably gone through 'privileged' educational establishments,were being attracted more to the RICS than the IQS. However, the RICS have admitted, and the present study has reinforced their contention, that the educational standing of the occupation is low. Furthermore, as Edge(1975) and Coates(1977) have both intimated, the awareness of recruits and the general public about the functions of Quantity Surveying is limited. The foregoing presents a paradox for Quantity Surveying. On the one hand, the RICS was attracting those from the upper social strata who are usually considered the more priviliged in society and yet, on the other hand, the IQS was predominantely attracting those from the lower social strata. This indicates a considerable diversity in the possible perceptions of prestige of recruits to each institute. Furthermore, in terms of agitation for status the RICS, as the dominant institution, has always taken the lead in acquiring occupational status.
In the previous section, dealing with the organisational perspective, a number of important issues emerged from the separate analyses of the dimensions of professionalism. The dimensions of Belief in Professional Association, Self Regulation and Professional Autonomy are associated with occupational power.

In terms of sector of employment, the dimensions of Professional Association and Professional Autonomy were ranked highest by Private Practice and Government, two sectors usually allied with the RICS. These dimensions were ranked least by Contracting, usually allied with the IQS. Furthermore, when considering the ranking of these two dimensions and the dimension of Self Regulation the following picture emerges. First, members of

the IQS ranked least on all three dimensions. Second, the RICS, ranked highest on Self Regulation. Third, the three power dimensions of professionalism increase with organisational rank and age. Fourth, on Hall's(1969) structural component of professionalisation Quantity Surveying is fully professionalised.

Interpreting the preceeding within a neo-Weberian perspective (Chapters 3 and 6) the senior members of Quantity Surveying, mainly through the RICS, are actively seeking to raise the status of the occupation through the use of the occupational strategies of professionalisation and professionalism. For the latter strategy they are using the dimensions of Belief in Professional Association, Belief in Self Regulation and Belief in Professional Autonomy to achieve this end. Furthermore, through their contact with occupational practice a sense of vocation is engendered because they are involved in the more prestigious tasks of the occupation. The attitudinal dimension of Belief in Service to the Public has failed to differentiate between age groups, hierarchical level, sector of employment and occupational structure. This would suggest that although useful in the rhetoric of journals it has little import for occupational striving except as a justification for the exercise of power.

The use of occupational power is achieved through the professional associations. It involves the use of tactics and political manoueverings. This has been explored within Quantity Surveying by the application of the process model of Bucher and Strauss(1961). Their model has indicated that the RICS has used tactics and strategies to carve out a supposedly unique mission for Quantity Surveying within the area of building construction. However, the exploration of the literature has revealed that the techniques used are not unique to the occupation, with the possible exception of cost planning and cost control. It could be argued, however, that these have emerged from the deficiencies of the Architectural profession rather than as a unique contribution from Quantity Surveying. The RICS, through its officials, has consistently used a number of tactics to achieve the unity of the

Surveying profession. The exercise of power,however, has not been restricted to those in authority within the RICS and IQS. Power groups arising from within the ranks of the membership of both institutues have sought to resist and oppose actions instigated by officials. This was especially prevalent over the contentious issue of amalgamation.

Cost planning, cost control and contractual and tendering procedures have been suggested, by some authors, to be Quantity Surveying's best claim to professional status. The present study would argue that the first two have no theoretical underpinning and could only be viewed as sophisticated extensions of the measuring function. In the practice setting they are, no doubt, applied with skill. However, as Harries-Jenkins(1970) pointed out, in the case of Quantity Surveying the linkage between theory and application of techniques is small. Therefore, a low level of professionalisation is indicated. Furthermore, occupational power, as discussed in the literature survey, rests on the knowledge base of an occupation. Within the present context the evidence indicates that the power base of Quantity Surveying rests on the application of highly practical techniques that at one end of the spectrum are on a par with craft skills and at the other end of the spectrum, with cost planning and cost control, are no more than sophisticated extensions of the craft based skills. The contractual aspects of Quantity Surveying's power base are derived and supplanted from that of the legal profession.

Occupational power as a function of uncertainty

The power structure of Quantity Surveying has been partially explored within the previous paragraphs. This will be further elaborated with reference to the power models of Haga(1975), Gordon and Ross(1962) and Johnson(1972).

Quantity Surveying has been analysed using the model suggested by Haga(1975). This model proposed that Quantity Surveying lacks the essential ingredients, at the present time, of mystique and the ability to intimidate to reach full professional status. The model suggested by Gordon and Ross(1962) indicated

that the occupation lacked some of the pre-requisite, continuing and evaluative characteristics that are essential for professional status. Findings from the model also add further support to those from Haga's model concerning the relative distribution of power and occupational authority in the client-practitioner relationship. In the exploration of occupational power, using Johnson's(1972) typology, the evidence indicated strongly that Quantity Surveying was operating under a sytem of corporate patronage. Further support for this conclusion stems from the data in the present study. Johnson has suggested that those in the occupation who are heavily involved with corporate patrons have similar social characteristics to those in the patron organisation, on the assumption that the corporate elite are from the higher social strata. The present study has revealed that those in the RICS, the institution primarily servicing the client side of the industry, tend towards recruitment from the upper social strata. This is particularly evident from the data of those who are qualified to A level standard,where there was a strong relationship between social class and managerial level. Furthermore, this group are strongly represented in the middle and upper management levels where reported professional and entrepreneurial tasks (which include client contact) are involved.

For Quantity Surveying, therefore, the power relationship between client and practitioner is biased in favour of the client. However, it has been argued this may depend on the level of corporate sophistication. Furthermore, this suggests that uncertainty reduction occurs in the direction of the client organisation. Viewed from a different perspective the level of awareness of the occupation is primarily restricted to those in direct contact with the occupational function since, in essence, the service performed is to a selected significant other. The occupation is unable to accrue wider social bases of power that the more visible professions of theology, law and medicine are able to muster. In the sentiments of Portwood and Fielding(1981) Quantity Surveying is unable to accumulate the entrapments of professional

privilege associated with the traditional professions. This will include the ability to recruit the more academically able from the higher social classes, who through the privileges of education and rank, have greater access to the power structures of society.

On the one hand Quantity Surveying appears fully professionalised on Hall's(1969) structural component and, on the other hand, Figure 53 (p. 351) indicates and reinforces the conclusion of Carr-Saunders and Wilson(1933) that Surveying, in general, and Quantity Surveying, in particular, have a multi-portal system of entry suggestive of a low level of professionalisation. THE CONCLUSION THAT HAS EMERGED FROM THIS STUDY IS THAT QUANTITY SURVEYING IS A HIGHLY SPECIALISED, SKILLED OCCUPATION, THAT IS USING THE CHARACTERISTICS ASSOCIATED WITH PROFESSION TO CONTROL ITS MEMBERSHIP. FURTHERMORE, BECAUSE THE OCCUPATION IS SERVICING AND USING THE SKILLS THAT ARE ONLY PERTINENT TO THE CORPORATE BUSINESS WORLD IT LACKS THE STATUS AND PRESTIGE OF OTHER OCCUPATIONS THAT ARE ABLE TO ATTRACT THE HIGHER CALIBRE RECRUIT.

Research evidence from the present study, when interpreted within a Marxist framework, also indicates that Quantity Surveying is providing, on the one hand, a service to the corporate capitalist structure of society and, on the other hand, by recruiting across the social spectrum it offers the opportunity for considerable social mobility, especially for those recruits from the lower social classes. The linkage between Quantity Surveying and the capitalist business functions in society also receives support from another area. The research results have consistently failed to indicate any differences among sector of employment and managerial level with respect to need for achievement. Furthermore, it has already been stated that, on average, quantity surveyors are high need achievers. Interpreting this within the framework provided by McClelland(1967), the results indicate that the tasks reported to be undertaken by quantity surveyors, especially at more senior levels,within Private Practice and Conracting, essentially involve entrepreneurial role behaviour.

Quantity Surveying can, therefore; be argued to have all the characteristics of a skilled business occupation similar to that of Accountancy. The quantity surveyor does not advise clients on business opportunities and financial management, in general, but does so within the specific and narrow confines of client construction projects.

The foregoing discussion has concentrated on issues that were apparent prior to amalgamation with the IQS. However, a number of the issues raised will have important implications for the post-amalgamation RICS.

Post-amalgamation RICS and occupational structuring

The RICS will face a number of potentially difficult problems that the present study has explored. First, the social composition of the institution will have changed from a majority who were in the upper social strata of society to one where the balance has shifted to the lower social strata. It is evident, from the analysis of the social composition of the RICS and IQS, that differing degrees of social prestige may have been attached to each institute. The RICS can probably rest on its lorals for a number of years with the status that it has attained in the past. However, for it to maintain some form of social prestige,in order to attract those from the upper social groupings and improve its position under a system of corporate patronage,it may have to adopt radical recruiting and educational policies. The RICS has been reluctant to do so up to the present.

Second, the institution now has to deal, as never before, with a greater diversity of practice requirements. The analysis of results, according to member institute, has revealed the requirements of the contracting side of the industry for technical qualifications. The trend in private practice is for degrees and diplomas. Furthermore, the requirements of the practice setting dictate, almost universally, the preferred part-time route to qualification with little emphasis on research. THE LITERATURE EVIDENCE IS CLEAR. IF QUANTITY SURVEYING, THROUGH THE RICS, WANTS TO RAISE ITS OCCUPATIONAL

STANDING THE EMPHASIS MUST MOVE FROM PART-TIME ROUTES FOR QUALIFICATION AND A MULTI-PORTAL SYSTEM OF ENTRY TO A UNI-PORTAL SYSTEM OF ENTRY, AT DEGREE LEVEL, OBTAINED THROUGH FULL-TIME EDUCATION.

Third, the lack of interest in research, by the membership in general, also impedes status attainment. The analysis presented in the present study has revealed three important points that have a direct consequence on the research dimension of the occupation;

i) The graduate members of the RICS are those who perceive the importance of research for the occupation. Coates(1977) data details this explicitly (see Table 9 ,p. 68). However, they are at the lower levels of the managerial hierarchy and tend to be involved, to a lesser extent, in Association affairs. Assuming current attitudes to research remain, it will be some time before these members are in a position of authority, within practice or the RICS, to have any direct impact on policies in this area. The research dimension of the occupation is likely to remain stagnant for some time to come.

ii) The occupation places too much emphasis on the importance of practice. This is partly the result of being a client controlled occupation. However, officials in the RICS face a dilemma. If they wish to improve the occupational lot in the milieu then the occupation must be partly research and partly practice led. The literature survey has established a strong link between theory, research, practice and occupational status. However, those qualified surveyors who are interested in research may be unwilling to leave the more lucrative practice setting to undertake research, assuming that organisations are willing to allow this to happen. Furthermore, the graduate, who is more likely to be in a position to attract research funding from Research Councils, is not enticed into the research sphere when the institution does little to give research into the theoretical aspects of the occupation the accord which it is due. The research dimension, for the graduate, is even less attractive when views expressed by a

proportion of the membership are considered. They are not prepared to give those working in research the status of 'Chartered Surveyor'.

iii) With the exception of tendering and contractual procedures, the practical nature of the techniques used may never be supported by a theory for the simple reason that under a system of corporate patronage the techniques do not need a thoery in order to be applied(Johnson 1972).

The analysis of results has confirmed the picture that was emerging from the theoretical discussions in the earlier chapters of the thesis. Quantity Surveying is going through a transition that is similar to that which evolved, in the early 1800s, during the formative years of the occupation. The transition then revolved around the dissociation between architects, architect-surveyors and contractors. At the present time, for Quantity Surveying, it is the dissociation between the 'technologist' and the 'technician'. The ideology stressed by corporate patronage is one of superior competence. For Quantity Surveying,this would entail extending the inroads already made into areas of financial and project management. The techniques of cost planning, cost control and contractual and tendering procedures are ideal for providing such a service. The climate within the construction industry is right for Quantity Surveying to capitalise on its position. Recently, the Architectural profession has been badly maligned on aesthetic grounds and for its inability to fulfil their requirements of project leaders. The engineering professions are likely to resist most strongly the managerial impetus of Quantity Surveying since they consider many of the tasks performed by quantity surveyors fall within their domain (see Chapter 2).

Managing this period of transition would be facilitated if the RICS;

i) Fostered an ideology consistent with an occupation controlled by corporate patronage. This requires an a move away from emphasis on equal competence, inherent in an ideology of professionalism, to an ideology

stressing superior competence.

ii) Maintains and successfully clarified the distinction between the technologist and the technician. To achieve this organisations must also adapt and employ the graduate surveyor in a technologist role rather than as a highly qualified substitute technician.

iii) Moved away from a system of multi-portal entry and part-time routes to qualification to a uni-portal system based on a university or polytechnic degree. Additionally, the degree should be read full-time.

iv) Accepted that the techniques of cost planning and cost control may have no theoretical underpinning and as such they may form part of the potential range of tools that can be used by quantity surveyors acting as project and financial managers in construction.

v) Established the theoretical impetus for the occupation in the area of management applied to the construction industry. A discipline of management in construction does not exist at the present time, its boundaries diffuse into other areas of management.

vi) Allowed the educational institutions the freedom to design courses consistent with the functions of the technologist. In practice this would require that the RICS maintain its control over the occupation through the TPC only. However, the issues of full-time education and graduate entry are at the heart of the dilemma facing the RICS. As Figure 9 (p. 75) illustrated poignantly the graduate, at the present time, has no incentive to join and participate in the affairs of the Association. In the market place, especially highlighted in the dealings with the EEC, the status of the Chartered Surveyor is recognised as first degree status. For the graduate, the title may offer no more, in terms of prestige, than a degree. However, should the qualification offered by the RICS be perceived as having additional status the graduate may be more willing to enter.

As Carr-Saunders and Wilson(1933) and Portwood and Fielding(1981) have noted, the attainment of professional privilege is a long

and arduous struggle but once attained offers considerable benefits for an occupation. The present analysis would suggest that Quantity Surveying still has a long way to go.

CHAPTER SUMMARY

The current chapter has presented an analysis of results in terms of the major areas explored in the research paradigm. These were subsequently interpreted within the theoretical framework provided by individual, organisational and occupational levels of analysis. The discussion has highlighted the complex interplay between the individual, the organisation and the occupation. As the research design is complex the folllowing chapter will summarise the major conclusions.

CHAPTER 10

CONCLUSIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction

The following sections set out conclusions from results and literature evidence within the theoretical framework of the Individual, Organisational and Occupational perspectives.

The individual perspective

1. The demographic characteristics of quantity surveyors are diverse in terms of social class and education.
2. Social class has been shown to relate consistently to time spent at school and time taken to qualify. However, there is no difference in the academic standards attained between social groupings even though the higher social classes remain at school longer. These results have been interpreted as indicative of temporal sequence rather than ability. The picture is more complex if the sample is divided into O and A level grades.
3. Individuals in Quantity Surveying are high need achievers.

The organisational perspective

1. Organisational role variables of task, degree of structuring, and achievement climate vary consistently according to sector of employment and hierarchical level. Organisational size has a confounding effect.
2. The variance present in organisational roles confounds statistical relationships with n-Ach to produce an appearance of homogeneity by sector and organisational rank.
3. Role variables, acting directly or indirectly, through achievement climate, affect the degree of professionalism exhibited by individuals. The results indicate that the construct Attitudinal Professionalism is multi- not uni-dimensional.
4. There is a relationship between Attitudinal Professionalism and reported occupational behaviour expressed as CPD.

5. Age and hierarchical level appear to affect Attitudinal Professionalism. The power dimensions of professionalism, namely, Professional Association as Major Reference, Self Regulation and Autonomy, are all positively related with the variables of age and hierarchical rank. The attitudinal dimension of Vocation is more strongly related to age than organisational rank. The attitudinal dimension of Belief in Public Service has no discriminating ability in terms of age, hierarchical rank or sector of employment.

The occupational perspective

Pre amalgamation

1. Pre-1983 the professional associations of the RICS and IQS recruited members from two different groupings. The RICS has recruited from the higher social strata (Social Classes 1,2 and 3 non-manual - 71%) whilst the IQS has recruited from the lower social groupings (Social Classes 3 skilled manual,4 and 5-51%). Furthermore, a greater percentage of RICS members attended public schools than did members of the IQS. The RICS has, therefore, attracted more privileged members of society. Recruits to each institution reflect those demographic differences in their perceptions of Institution prestige.

2. The power dimensions of Attitudinal Professionalism and the apparent full professionalisation of Quantity Surveying have been linked with the occupational striving of the RICS to increase the status of the occupation. However, the attitudinal dimension of Belief in Service to the Public has failed to differentiate between major occupational categories. It has been concluded that this is a useful tactic to justify the exercise of control over recruiting.

3. In drawing the findings together it can be concluded that Quantity Surveying:

i) Is a client controlled occupation operating under a system of corporate patronage.

ii) Requires a prolonged period of training to acquire essentially technical knowledge, to practice a highly practical set of techniques, using the characteristics of "professions" to test practitioner competence.

iii) Cannot operate a complete closure principle because of lack of status, privilege and power although it is using the ideology of professionalism to serve these ends.

iv) Lacks the critical components of a unique body of theory, intimidation cruciality and mystique to make it a true profession and, therefore, can only be described as,

v) A specialised occupation providing a skilled business service within the division of labour in society.

Post amalgamation consequences

A number of the issues raised in the present study will have implications for the unified RICS. These relate specifically to three areas. First, the changing social composition of the RICS may have serious consequences for its continuing prestige. Demographic differences have been highlighted with reference to perceptions of Institutional prestige. Second, if the RICS wants to move Quantity Surveying from a skilled business occupation to a profession is should attempt to influence, to a greater extent than it has done so in the past, the practice setting in order to prevent the wastage of graduates. If it is desirous of, in the long term, achieving graduate entry then the tasks undertaken by such individuals should reflect training the potential technologist and not a highly qualified technician. The development of a full

system of corporate patronage can only be achieved when there is an effective distinction between the work of the technologist and the work of the technician. Third, the differing requirements of the sectors of employment, for quantity surveyors, will place considerable burdens on the educational processes of the institution. The socialising experiences of individuals has been diverse. Furthermore, with the contracting side of the industry moving under the wing of the RICS, a sense of uniformity of outlook may be difficult to maintain.

Quantity Surveying has a prolonged and arduous struggle ahead to obtain and reap the rewards of professional privilege. However, the potential lies dormant within the occupation.

RECOMMENDATIONS FOR FUTURE RESEARCH

The present study has sought to establish a general framework for exploring one occupation from an historical, individual, organisational and occupational perspective. Future research could contribute substantially in the following areas:

i) The complexities of the demographic variables of social class and education within Quantity Surveying.

ii) The complexities of the organisational perspective in the occupation with specific reference to role positions.

Once these complexities were unravelled comparative studies of Architecture and Quantity Surveying would be feasible as they have the same routes and similar aspirations to be leaders of the building team.

A further comparative study of Quantity Surveying and Accountancy would be extremely useful as they perform similar functions to the corporate business.world.

In a theoretical sense, future research should explore the effects of the organisation on achievement motivation and interpersonal behaviour. The present study has highlighted the complexity of role variables on each of these domains.

Finally, future research should expand on the work commenced by Johnson (1972) into the differing consequences of occupational power for the structuring of an occupation. The present study has contributed to the discussion in this area.

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APPENDIX 1

Data on Interpersonal Check List

Table 51 Kuder Richardson estimates of reliability*
Source: Armstrong (1958:394)

Check List Rating	r_{tt}	Significance
Normals (N=50)		
Self Rating	953	01
Mother Rating	967	01
Father Rating	969	01
Wife Rating	966	01
Ideal Wife Rating	958	01
Ideal Self Rating	953	01
Alcoholics (N=50)		
Self Rating	958	01
Mother Rating	967	01
Father Rating	976	01
Wife Rating	972	01
Ideal Wife Rating	960	01
Ideal Self Rating	966	01

*Decimal points omitted

Table 52 Factor analytic studies of ICL
Source: Male (1984)

Study	No. factors extracted	Labelling	Factor Technique	Comments
Briar & Bieri (1963)	3	I Dominance II Love III Inferiority feelings	Principle component & varimax rotation	Modification of ICL
Foa (1961)	3	I No. words checked II Dominance/ submissiveness III Hostility/Affection	Not specified	
Golding & Knudson (1975)	3	I Aggressive dominance II Affiliation/ sociability III Autonomy	Principal component then high oblique order	See Table 53
Lorr & McNair (1963)	3	Not specifically labelled	Not specified but oblique rotation	
Truckenmiller & Schaie (1979)	3	I Autocratic dominance II Affiliation III Inferiority feelings	Principal axis	See Table 54

Table 53 ICL Factor Structure - Level II
Source: Golding and Knudson (1975)

VARIABLE	FACTORS I Friendly Submissiveness	II Hostile Dominance	III Affiliation	IV Hostility
AP Man Auto		0.94		
BC Comp Narcis		0.76		
DE Agg Sad		0.51		0.67
FG Rebell Dist				0.87
HI Self Eff Masoch	0.69	-0.53		
JK Doc Dep	0.78			
LM Coop Overcon	0.43		0.60	
NO Resp Hypernorm			0.91	
Acquiescence	0.71	0.48		
Social Desirability	0.74			
TOTAL VARIANCE EXPL%	23.9	23.1	15.8	14.6

Table 54 ICL Factor Structure - Level 2
Source: Truckenmiller and Schaie (1979)

		UNROTATED FACTORS*			ROTATED FACTORS**		
	VARIABLE	I	II	III	I	II	III
					Autocractic Dominance	Affiliation	Inferiority Feelings
AP	Man Auto	0.30	0.64	-0.38	0.55	-0.63	-0.03
BC	Comp Narcis	0.11	0.67	-0.16	0.63	-0.32	0.04
DE	Agg Sad	0.26	0.80	0.44	0.76	0.18	0.68
FG	Rebell Dist	0.36	0.26	0.52	0.21	0.30	0.73
HI	Self Eff Masoch	0.67	-0.43	0.38	-0.54	0.13	0.71
JK	Doc Dep	0.75	-0.24	0.07	-0.38	-0.24	0.52
LM	Coop Overcon	0.81	-0.11	-0.36	-0.28	-0.72	0.20
NO	Resp Hypernorm	0.70	-0.02	-0.26	-0.17	-0.58	0.24

* extracted from Table 1 p.1035

** Table 4 p.1038

APPENDIX 2

Covering Letter and Follow-Up Postcard

Heriot-Watt University

Department of Building

Chambers Street, Edinburgh EH1 1HX
Telephone 031-225 8432

Head of Department
Professor V B Torrance, MSc, PhD, FCIOB, FBIM

your ref

our ref VBT/FJ

date As Postmark

Dear Sir,

<u>An Organisational Analysis of the Quantity Surveying Profession</u>

The Quantity Surveying profession is assuming an ever increasing role in the construction process. Unfortunately, it does suffer from a lack of systematic research into professional and organisational requirements when compared with the other established professions, such as Architecture.

The enclosed questionnaire forms part of a major study, to be undertaken by this Department, of the Quantity Surveying profession. It is concerned with assessing professional, organisational and attitudinal variables. As a professional person, with considerable experience in the profession, your views would be of great value in the study.

The questionnaire is to be treated in the strictest confidence. For the purposes of the study we are interested in trends not names. The value of the study will be considerably increased if you could answer the statements and questions as frankly as possible. The information derived from the questionnaire is of prime importance and could, in part, determine how the Department is to provide feed-back to the profession and the Construction Industry in the future.

We are very aware of the pressures and time constraints placed on professionals in Quantity Surveying but hope that a little of your time spent on the questionnaire will assist us in the research. The questionnaire,in places, may appear repetitive. This is solely a function of the scaling techniques used. The questionnaire may also appear of considerable length. Every attempt has been made to keep the length to a minimum so that the least amount of time and effort will be required for completion. Therefore, it has been broken down into sections to enable you to answer it at your own pace or as time permits.

A stamped, addressed envelope is enclosed for questionnaire returns. We would be grateful if the questionnaire could be returned at your earliest convenience as this will facilitate quick and easy processing. A brief synopsis of the study will be available on request.

Yours faithfully,

Professor V.B. Torrance,
Head of Department of Building.

ENCL.

APPENDIX 3

Questionnaire

HERIOT-WATT UNIVERSITY

AN ORGANISATIONAL ANALYSIS OF THE QUANTITY SURVEYING PROFESSION

DEPARTMENT OF BUILDING

IN STRICT CONFIDENCE

Leave Blank

COL

		1	1-7

The following questions are concerned with your professional history. A number of different types of answers are required. Some require circling numbers in boxes or Yes/No questions. Others require answers to be inserted in boxes or spaces provided.

Please use BLOCK CAPITALS where possible to ease legibility.

1. SEX

Male	1		8
Female	2		

2. DATE OF BIRTH

Day	Month	Year	
			9-14

3. NATIONALITY

U.K.	1		15
Non-U.K.	2		

4. SECONDARY EDUCATION

a) Type of school attended(eg. State,Public,Private) — 16-17

b) How many 'O' levels or equivalent do you have? ____Nr — 18-19

c) How many 'A' levels,SCE highers or equivalent do you have? ____Nr — 20

d) Please state the number of years you have spent in full time secondary education. ____Nr — 21-22

e) Age on leaving school? ____Yrs — 23-24

5. GENERAL EMPLOYMENT INFORMATION

a) Age on entering full time employment if different from 4e above? ____Yrs — 25-26

b) Have you been an Articled trainee? Yes/No — 27

FURTHER EDUCATION

Please note;

. Part time study is defined here as day release, evening classes, correspondence courses and private study whilst in full time employment.
Full time study is defined here as attendance at college, University etc.(including sandwich courses) whilst not in full time employment.

6. PROFESSIONAL QUALIFICATIONS

a) Please state your Institutional qualifications (eg. ARICS,FIQS) — 28-30

b) Please state your route to professional qualification (eg. All IQS exams or perhaps ONC→HNC→Degree→Full exemption RICS exams+TPC) — 31-32

c) Please state the number of years, from embarking on your QS career, to reach full corporate membership of your main QS Institution ____Yrs — 33-34

Leave Blank

COL

If you have ONC/OND,HNC/HND ——→ Q7

If you have a degree or diploma ——→ Q8

If you have sat RICS/IQS exams ——→ Q9

7. TECHNICAL QUALIFICATIONS ONLY

a)Please state your technical qualifications (eg. City&Guilds,ONC,HND etc.) ☐☐ 35-38

b)Please state the number of years spent in;

Part time study for technical qualifications ____Yrs ☐☐ 39-40

Full time study for technical qualifications ____Yrs ☐☐ 41-42

If you have a degree or diploma ——→ Q8

If you have sat RICS/IQS exams ——→ Q9

8. UNDERGRADUATE DEGREE OR DIPLOMA HOLDERS ONLY

a)Please state your undergraduate degree or diploma ☐☐ 43-44

b)Please state the number of years spent in;

Part time study for degree or diploma ____Yrs ☐☐ 45-46

Full time study for degree or diploma ____Yrs ☐☐ 47-48

c)Did your undergraduate degree or diploma give you full exemption from RICS/IQS written exams?

Yes/No ☐ 49

d)Do you have a postgraduate degree obtained <u>before</u> you reached corporate membership as a QS?

Yes/No ☐ 50

If NO ——→ Q9

If YES, please state the type of qualification (eg. M.Sc.,Diploma) ☐☐ 51-52

Please state the number of years spent in;

Part time study for postgraduate degree ____Yrs ☐☐ 53-54

Full time study for postgraduate degree ____Yrs ☐☐ 55-56

e)Did your postgraduate degree give you full exemption from RICS/IQS written exams?

Yes/No ☐ 57

Please go to Q9

9. RICS/IQS WRITTEN EXAMS

a)Have you obtained <u>corporate membership</u> of the above Institutes,by means of you having membership of another Institute?

Yes/No ☐ 58

If YES, were you granted <u>full</u> or <u>partial</u> exemption from written exams? ☐ 59

b)Please state the number of years spent in;

Part time study on RICS/IQS exams ____Yrs ☐☐ 60-61

Full time study on RICS/IQS exams ____Yrs ☐☐ 62-63

Leave Blank

COL

							2

1-7

RICS/IQS WRITTEN EXAMS(CONTD)

c)Have you sat an RICS/IQS Test of Professional Competence?

Yes/No ☐ 8

If NO ⟶ Q10

If YES,how many years has it taken to pass the TPC, after exemption from or completion of RICS/IQS exams?

____Yrs ☐☐ 9-10

POST QUALIFYING EDUCATION

10. DEGREES,DIPLOMAS ETC.

a)Have you undertaken any further academic study since qualifying?

Yes/No ☐ 11

If NO ⟶ Q11

If YES, please state the nature of your qualification (eg. M.Sc.,Diploma) ☐☐ 12-13

b)Please state the number of years spent in;

Part time study for the qualification ____Yrs ☐☐ 14-15

Full time study for the qualification ____Yrs ☐☐ 16-17

11. PROFESSIONAL SEMINARS,COURSES ETC.

a)Do you attend professional refresher courses,seminars, conferences etc?

Yes/No ☐ 18

If NO ⟶ Q12

If YES, please state the approximate number of hours per year.

____Hrs ☐☐ 19-20

CAREER STRUCTURE

12. CAREER SPAN

a)Please indicate the number of years spent in;

Full time employment in your QS career ____Yrs ☐☐ 21-22

Full time employment outwith your QS career ____Yrs ☐☐ 23-24

Any time not accounted for above ____Yrs ☐☐ 25-26

13. PRESENT EMPLOYMENT

a)Please state your present employment(eg. Education,C. Govt, Private Practice, contracting) ☐☐ 27-28

b)How long have you been employed in your present organisation? ____Yrs ☐☐ 29-30

14. NUMBER OF CHANGES IN FULL TIME EMPLOYMENT TO DATE(excluding sandwich training)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18+ ☐☐ 31-32

15. AREAS COVERED IN CAREER,IN ORDER OF TIME(eg.Private Practice to Contracting to Local Govt etc) ☐☐ 33-34

Leave Blank

COL

16. PRESENT INCOME

a)Please state your present income to the nearest one hundred pounds(exclusive of benefits) £____ 35-39

b)Please state the total value of any benefits you receive per year (eg. Firm's car,credit cards etc) £____ 40-44

17. OVERSEAS EMPLOYMENT

Have you worked as a QS overseas Yes/No ☐ 45

If NO ⟶ Q18

If YES, please state the type and approximate value of contracts where possible. 46-47

FAMILY INFORMATION

18. FATHER'S OCCUPATION DURING SCHOOL YEARS ☐☐ 48-49

19. BIRTH ORDER(eg.First born,only child etc) ☐☐ 50-51

20. MARITAL STATUS ☐ 52

Single	1	Divorced	4
Married	2	Divorced -Remarried	5
Widowed	3	Separated	6
Widowed -Remarried	4		

YOUR PRESENT ORGANISATION

The following questions are to assist in understanding how your organisation is administered on a day to day basis.

21. PLEASE INDICATE YOUR PRESENT POSITION IN THE OFFICE(eg.Chief Executive,Partner,Assistant,Lecturer) ☐☐ 53-54

How long have you been employed in your present position?

____Yrs ☐☐ 55-56

22. NUMBER OF STAFF DIRECTLY UNDER YOUR CONTROL(eg. QS staff,back up staff)

____Nr ☐☐ 57-58

23. APPROXIMATE VALUE OF WORK DIRECTLY UNDER YOUR CONTROL IN ANY ONE YEAR(eg. Contracts as job QS)

£____ ☐☐ 59-60

24. ORGANISATIONAL AND PROJECT PROBLEMS

a)Do you discuss organisational problems with colleagues ☐ 61

Frequently	1
Occasionally	2
Never	3
Not applicable	4

b)Do you discuss project problems with colleagues ☐ 62

Frequently	1
Occasionally	2
Never	3
Not applicable	4

Leave Blank

COL

25. OFFICE RESPONSIBILITIES

Please place a TICK against any of the following items that describe the type of work you are involved in.

Preparation of	-feasibility studies -approximate estimates -cost plans	☐☐ 63-64
Preliminary advice to clients	-on tender documentation -on general cost information	
Preparation of tender documentation for	-Building Works -Civil Engineering Work -M & E Work	
Preparation and settlement of Final Accounts for	-Building Work -Civil Engineering Work -M & E Work	
Work in Progress	-Contract negotiations -Valuations -Financial Appraisal -Cash flow forecasting	
General	-Gaining new work -Office administration -Tender evaluation	
Other(please specify)	-	

26. ORGANISATIONAL DIAGRAM

Please draw a schematic diagram of your organisational structure in terms of office management. Please indicate your own position and the number of people at each level.

65-80

Leave Blank

COL

	3	1-7

27. NUMBER OF QUALIFIED QS STAFF EMPLOYED(including partners) IN YOUR OFFICE OR DEPARTMENT.

_____Nr 8-10

28. NUMBER OF UNQUALIFIED QS STAFF EMPLOYED(including trainees) IN YOUR OFFICE OR DEPARTMENT

_____Nr 11-13

29. OFFICE MANAGEMENT

a) Is your organisation structured;

With set teams and formal levels of authority — 1

Some team flexibility but still with a definite authority structure — 2

Ad hoc teams created to suit varying workloads — 3

☐ 14

b) Are the QS staff subordinate to another profession (eg. attached to an Architect's or Engineers Dept)

Yes/No ☐ 15

30. WIDER ORGANISATIONAL CONTEXT

Please indicate, by schematic diagram, if your organisation fits into a wider organisation structure(eg. Head Office, Govt. Ministry, Branch Office)

☐☐ 16-17

31. TOTAL NUMBER OF STAFF IN YOUR U.K. ORGANISATION(ie. those employed also in a wider organisational context throughout Great Britain eg. Govt. Ministry, Regional Health Authority, Head Office)

_____Nr 18-23

Leave Blank

COL

The following questions are concerned with the authority for decision making in your organisation. Please indicate, against each item, the extent to which it applies in your place of work. or to you.

	Definately False	False	True	Definately True	
1. There can be little action taken until a supervisor approves a decision.	—	—	—	—	☐ 24-28
2. A person who wants to make his or her own decisions would be quickly discouraged.	—	—	—	—	☐
3. Even small matters have to be referred to someone higher up for a final decision.	—	—	—	—	☐
4. I have to ask my boss before I do almost everything.	—	—	—	—	☐
5. Any decision I make has to have my boss' approval.	—	—	—	—	☐

The following questions are concerned with your degree of participation in the organisation. Please indicate, against each item, the extent to which it applies in your place of work.

	Never	Seldom	Sometimes	Often	Always	
1. How frequently do you usually participate in the decisions to hire new staff?	—	—	—	—	—	☐ 29-32
2. How frequently do you usually participate in the decisions on the promotion of the professional staff?	—	—	—	—	—	☐
3. How frequently do you participate in decisions on the adoption of new policies?	—	—	—	—	—	☐
4. How frequently do you participate in the decisions on the adoption of new programmes and projects?	—	—	—	—	—	☐

Leave Blank COL

The following questions are statements that may or may not be true for your job in your department or office. Please indicate for <u>each item,</u> the extent to which it applies.

	Definately True	More True Than False	More False Than True	Definately False	
1. I feel that I am my own boss in most matters.	___	___	___	___	☐ 33-47
2. A person can make his own decisions without checking with anybody else.	___	___	___	___	☐
3. How things are done are left pretty much up to the person doing the work.	___	___	___	___	☐
4. People are allowed to do almost as they please.	___	___	___	___	☐
5. Most people make their own rules on the job.	___	___	___	___	☐
6. There is no rules or office manual.	___	___	___	___	☐
7. There is a complete written job description for my job.	___	___	___	___	☐
8. Whatever situation arises,we have procedures to follow in dealing with it.	___	___	___	___	☐
9. Going through the proper channels is constantly stressed.	___	___	___	___	☐
10. People feel as though they are constantly being watched to see that they obey all the rules.	___	___	___	___	☐
11. The organisation keeps a written record of everyone's performance.	___	___	___	___	☐
12. The employees are constantly checked on for rule violations.	___	___	___	___	☐
13. We are to follow strict operating procedures at all times.	___	___	___	___	☐
14. Everyone has a specific job to do.	___	___	___	___	☐
15. Whenever we have a problem we are supposed to go to the same person for an answer.	___	___	___	___	☐

The following items are concerned with the way you interact with your colleagues, superiors or clients etc. They are therefore describing how you view YOURSELF in your work situation. The items consist of single words or phrases which may or may not describe YOURSELF at work.

Please read each word or phrase and then mark with a TICK, against the item concerned, those statements that apply to you.

IF AN ITEM <u>DOES NOT</u> DESCRIBE YOU THEN PLEASE <u>DO NOT</u> PLACE A TICK AGAINST IT

LEAVE BLANK COLS 48-75

4	1-7

LEAVE BLANK COLS 8-34

MYSELF AT WORK

Will believe anyone		Kind and reassuring	
Good leader		Agree with everone	
Spineless		Want everyone's love	
Dependent		Enjoy taking care of others	
Dominating		Spoil people with kindness	
Timid		Will confide in anyone	
Very anxious to be approved of		Too willing to give to others	
Apologetic		Want everyone to like self	
Act important		Affectionate and understanding	
Usually give in		Friendly all the time	
Sarcastic		Warm	
Appreciative		Forgive anything	
Trusting and eager to please		Too easily influenced by friends	
Easily led		Give freely of self	
Make a good impression		Friendly	
Clinging		Helpful	
Touchy and easily hurt		Like everybody	
Think only of self		Try to comfort everyone	
Expect everyone to admire self		Too lenient with others	
Self respecting		Encouraging others	
Modest		Over sympathetic	
Often unfriendly		Over protective of others	
Easily fooled		Tender and soft hearted	
Try to be too successful		Fond of everyone	
Cold and unfeeling		Generous to a fault	
Slow to forgive a wrong		Sociable and neighbourly	
Self punishing		Big hearted and unselfish	
Bitter			

LEAVE BLANK
COLS
35-70

						5

1-7

LEAVE BLANK
COLS
8-44

MYSELF AT WORK

Dictatorial		Resent being bossed	
Self seeking		Egotistical and conceited	
Frequently angry		Resentful	
Impatient with others mistakes		Self confident	
Businesslike		Firm but just	
Sceptical		Always pleasant and agreeable	
Complaining		Selfish	
Can be frank and honest		Jealous	
Forceful		Accept advice readily	
Able to give orders		Somewhat snobbish	
Frequently disappointed		Hardly ever talk back	
Able to criticise self		Shrewd and calculating	
Able to doubt others		Always giving advice	
Obey willingly		Proud and self satisfied	
Often gloomy		Outspoken	
Cruel and Unkind		Co-operative	
Independent		Manages others	
Passive and unaggressive		Irritable	
Straightforward and direct		Able to take care of self	
Can be indifferent to others		Very respectful to authority	
Often helped by others		Admire and imitate others	
Let others make decisions		Always ashamed of self	
Hard hearted		Like to be taken care of	
Can be strict if necessary		Distrust everybody	
Like responsibility		Can complain if necessary	
Critical of others		Stern but fair	
Boastful		Stubborn	
Want to be led		Hard headed if necessary	
Self reliant and assertive		Like to compete with others	
Meek		Hard to impress	
Rebel against everything		Lack self confidence	
Grateful		Respected by others	
Bossy		Shy	
Often admired		Can be obedient	
Well thought of		Easily embarrassed	
Considerate		Eager to get along with others	
		Love everyone	

JOB CLIMATE QUESTIONNAIRE

The following questions are pairs of descriptions with which you can describe the way you see the immediate environment, or climate, in which you work. The descriptions refer to the various aspects of your job situation such as independence, the degree of formality, how much responsibility exists and so on.

Look at each pair of descriptions and decide firstly, which of the two descriptions is in general more indicative of your own view of your job situation. Secondly, decide the extent to which this description applies - then place a TICK on the scale provided. If neither description is applicable place a tick in the centre point of the scale.

Example 1

Statement A ✓ __ __ __ __ __ __ Statement B

This example indicates that your preference is strongly orientated towards Statement A.

Example 2

Statement A __ __ __ __ ✓ __ __ Statement B

This example indicates that your preference is moderately orientated towards Statement B.

Example 3

Statement A __ __ __ ✓ __ __ __ Statement B

This example indicates that your preference is for neither description.

PLEASE DO NOT LEAVE OUT ANY QUESTIONS

Leave Blank
COL

JOB CLIMATE QUESTIONNAIRE

1.	I am allowed a great deal of independance in my work	I am allowed very little independence in my work	45-58
2.	I always have to share the credit for the results of my work with other people	I am allowed to take full credit for the results of my work	
3.	Personal initiative is highly valued	Personal initiative is rather frowned upon	
4.	I feel I am able to set my own work pace	I feel I am unable to set my own work pace	
5.	I always have to get permission from my superior before doing anything new	I rarely have to get permission from my superior before doing anything new	
6.	It is easy to plan ahead in my work	It is very difficult to plan ahead in my work	
7.	I feel that I work in a highly competitive department	I feel that I work in a department that is not at all competitive	
8.	Most of the people around me are very decisive	Most of the people around me are rather indecisive	
9.	The work allows me very little personal responsibility	The work allows me a great deal of personal responsibility	
10.	The work gives me a sense of achieving something	The work does not give me a sense of of achieving something	
11.	How I progress in the organisation has very little to do with my own performance	How I progress in the organisation depends very largely on how I perform	
12.	The work goals have very little challenge for me	I am able to work towards very challenging goals	
13.	My successes are noticed far more than failures	My failures are noticed far more than my successes	
14.	I can rarely find out how well I have performed at a task	I can very soon find out how well I have performed at a task	

Leave Blank
COL

15.	I feel that I am able to stand out as an individual apart	__	__	__	__	__	__	__	I feel very much like a small cog in a big wheel	☐ 59-69
16.	Promotion is mainly on the basis of length of service	__	__	__	__	__	__	__	Promotion is closely linked with good work	☐
17.	I am encouraged to improve myself through formal training	__	__	__	__	__	__	__	I am not encouraged to improve myself through formal training	☐
18.	The support that I get from other departments is often inadequate	__	__	__	__	__	__	__	The support that I get from other departments is first class	☐
19.	There are pressures on me to get problems out into the open	__	__	__	__	__	__	__	There are pressures on me to 'sweep problems under the carpet'	☐
20.	Ambition tends to be frowned upon	__	__	__	__	__	__	__	Ambition is strongly encouraged	☐
21.	Success in my work is highly rewarded	__	__	__	__	__	__	__	Success in my work is hardly recognised	☐
22.	I can take no risks in my job	__	__	__	__	__	__	__	I am able to take reasonable risks in my job	☐
23.	There is a great deal of novelty in my job	__	__	__	__	__	__	__	There is very little novelty in my job	☐
24.	I feel that I work in a highly inefficient department	__	__	__	__	__	__	__	I feel that I work in a highly efficient department	☐
25.	All-in-all this is a dynamic place in which to work	__	__	__	__	__	__	__	All-in-all this is not a very dynamic place in which to work	☐

The purpose of the following questions is to look at some of the views you have towards your IDEAL ORGANISATION and IDEAL BOSS. Please do not describe your current job situation: think of the type of organisation and boss you would ideally prefer for your personal satisfaction regardless of whether or not they would be the best choice for you at your particular stage of career.

You will find the questionnaire has rather an unusual format. On the following pages you are given pairs of descriptions. Please read each pair of statements and then mark with a TICK, on the scale provided - the statement you find CLOSEST to your own preference.

Example 1

Statement A __ __ ✓ __ __ __ Statement B

This example indicates, on balance your preference would be orientated towards A than B. The choice may sometimes be rather tricky - like chooosing between the lesser of two 'evils' or the better of two 'goods'. Nevertheless, you will find that a choice is possible - one will just tip the balance for you.

Example 2

Statement A __ __ __ __ __ ✓ Statement B

This example indicates that your preference is strongly orientated towards Statement B.

PLEASE DO NOT LEAVE OUT ANY QUESTIONS

Leave Blank
COL

WOULD YOUR IDEAL ORGANISATION BE ONE...

1.	Where a person's promotion is unpredictable and depends largely on his own good performance.	Where a person can see exactly how his career will progress after certain periods of time.	☐ 70-77
2.	That regards special benefits, such as attractive bonuses, free pension schemes and a company car, as the prime incentives to remain in the job.	That concentrates on tempting new employees with interesting work, although it is not able to pay as much as other organisations providing less interesting work.	☐
3.	Where it is emphasised that the 'job comes first', therefore afterwork pleasures should take secondary importance.	Where it is very difficult to carry on work over a weekend period should someone so desire.	☐
4.	Where a few changes in tasks that occur allow people to perform one type of work with considerable care and proficiency.	Where there is constant pressure to complete a task well in a short period of time and to then become involved with another task.	☐
5.	When there is a general attitude that, even if the working conditions are very poor, much can be compensated by interesting work.	Where little that is favourable can be said about the work itself but where the attitude of management towards its employees' welfare is first class.	☐
6.	That gives people jobs that can very likely be done well.	That gives people work which is not so difficult that they would have to rely on luck to do a good job nor so easy that they are bound to succeed.	☐
7.	Where it is expected that leisure time will be sacrificed if work pressure is great.	Where it is felt that working late is undesirable because eventually strain will be experienced in normal working hours.	☐
8.	That believes that if a person concentrates primarily on working in a warm, close fashion with his co-workers, good work must follow.	That regards the successful completion of an employee's assignment as more important than the feelings of that person's co-workers.	☐

Leave Blank

COL

6 1-7

9.	That expects individuals to help the organisation by fulfilling their own personal goals.	— — — — — —	That expects employees to strongly identify with the organisation rather than think of themselves as individuals apart.
10.	Where good working companions and generous holidays are provided to make up for the tedious nature of the work.	— — — — — —	Where there is more concern with employees' satisfaction with the actual work that they do than with their general conditions of work.
11.	Where each employee is solely responsible for most of the work that he performs.	— — — — — —	Where several people are always responsible for, and take the credit for, a particular piece of work.

WOULD YOUR IDEAL BOSS BE SOMEONE...

12.	Who gives his employees work that they feel sure of doing well without too much effort.	— — — — — —	Who gives people work requiring quite a lot of struggling to master.
13.	Who insists on finding out how worthwhile his employees see their work but neglects looking into the enjoyment that they get from their work.	— — — — — —	Who regards the pleasure that his employees get from their work as more important than the actual worthwhileness of the work.
14.	Who emphasises the importance of the work group's responsibility for its decisions rather than particular individuals in the group taking the responsibility.	— — — — — —	Who relies on a particularly efficient individual in a work group to control the group's activities.
15.	Who expects to be consulted only for very exceptional work problems.	— — — — — —	Who encourages employees to follow set procedures in their work.
16.	Who attempts to provide attractive work for his employees even if it is not of great value to them.	— — — — — —	Who would not give people work that they could view as of little value even though it may be highly attractive to them.

			Leave Blank COL
17.	Who gives his employees general guidelines on which to base their own decisions about how to proceed with their work.	Who gives clear, very comprehensive instructions on how employees should carry out their work.	☐ 16-23
18.	Who finds that for group morale it is better to try to preserve good co-worker relationships that may be spoiled by letting people keep working at a task to their own satisfaction.	Who feels that a certain degree of bad feeling amongst employees is worth tolerating if they are very much involved with their work.	☐
19.	Who looks for future employees who will be able to work independently of others.	Who looks for future employees who will primarily be good at getting on well with other employees.	☐
20.	Who would rather employees consulted him with work difficulties than struggle with them themselves.	Who will not interfere with work for which employees have responsibility.	☐
21.	Who expects an individual's work rate to remain relatively uninfluenced by his colleagues.	Who relies on the group as a whole to produce a given amount of work, expecting the group to influence an individual's quantity of work done.	☐
22.	Who views good employees relations as being most important and incompatible with competitiveness.	Who insists on individuals trying to achieve a better performance rating than their co-workers.	☐
23.	Who gives employees work where they need to write fairly detailed arguments about problem solutions.	Who gives employees work that involves very little written reporting or problem discussions.	☐
24.	Who feels that working late should be avoided.	Who encourages working late in order to meet a deadline.	☐

Leave Blank
COL

The following questions are an attempt to measure your attitudes and behaviour towards the Quantity Surveying profession. There are five possible responses to each item. This allows you to express the degree of agreement/ disagreement with the item. The five responses are:-

SA Strongly Agree
A Agree
? Neutral opinion
D Disagree
SD Strongly disagree

Please circle your response to each item. Please answer all questions.

1.	I systematically read the professional journals.	SA A ? D SD	24-38
2.	Other professions are more vital to society than Quantity Surveying.	SA A ? D SD	
3.	I make my own decisions in regard to what is done in my work.	SA A ? D SD	
4.	I regularly attend professional meetings at the local level.	SA A ? D SD	
5.	Most people would stay in Quantity Surveying even if their incomes were reduced.	SA A ? D SD	
6.	My own decisions are subject to review.	SA A ? D SD	
7.	There is not much opportunity to to judge how another person does his work.	SA A ? D SD	
8.	I am my own boss in almost every work related situation.	SA A ? D SD	
9.	If ever an occupation is indispensible it is Quantity Surveying.	SA A ? D SD	
10.	My colleagues know how well we all do in our work.	SA A ? D SD	
11.	There are very few people in Quantity Surveying who do not believe in their work.	SA A ? D SD	
12.	Most of my decisions are reviewed by other people.	SA A ? D SD	
13.	I think Quantity Surveying, more than any other, is essential to society.	SA A ? D SD	
14.	My fellow professionals have a pretty good idea about each other's competence.	SA A ? D SD	
15.	People in Quantity Surveying have a 'calling' for their work.	SA A ? D SD	

		Leave Blank COL
16. The importance of Quantity Surveying is sometimes over stressed.	SA A ? D SD	☐ 39-48
17. The dedication of people in the profession is most gratifying.	SA A ? D SD	☐
18. I do not have much opportunity to exercise my own judgement.	SA A ? D SD	☐
19. A problem with Quantity Surveying is that no one knows what his colleagues are doing.	SA A ? D SD	☐
20. I believe the professional organisations should be supported.	SA A ? D SD	☐
21. Some other occupations are more important to society than Quantity Surveying.	SA A ? D SD	☐
22. It is encouraging to see the high level of idealism that is being maintained in the profession.	SA A ? D SD	☐
23. The professional organisations do little for members.	SA A ? D SD	☐
24. We really have no way of judging each others competence.	SA A ? D SD	☐
25. Although I would like to, I do not read the professional journals too often.	SA A ? D SD	☐

Do you want a brief synopsis of the study?	Yes/No
Would you be available for a short interview if selected?	Yes/No
Would you be available for a retest of this questionnaire at some time in the future?	Yes/No

PLEASE MAKE ANY COMMENTS ON THE QUESTIONNAIRE OVERLEAF

APPENDIX 4

Description of Unadjusted Management Levels

ORGANISATIONAL LEVELS (unadjusted)

Top

Managing Directors, Directors, Partners, Principals

Upper

Junior Partners, Associates, Area Managers,
Departmental heads

Middle

Sub-department heads (principal quantity surveyors)
Senior Surveyors, Group Leaders

Lower

Quantity surveyor

Non-Management

Assistant level

APPENDIX 5

Task Variables- Item Descriptions

MAJOR TASK ACTIVITIES

Entrepreneurial

Gaining new work
Tender submissions
Obtaining export orders
Estimating (if done by head of firm or head of department)
Contractual claims (if done by head of firm)
Letting properties
Buying sites/properties
Sales/Marketing
Tax Advice

Professional

Preparation of
- Feasibility studies
- Approximate estimates
- Cost Plans
- Cost Analyses

Advice on
- tender documentation
- general cost information

Contract negotiations
Legal work and litigation
Advice preparation and settlement of claims
Arbitration
Advice on contract tendering methods
Tender evaluation
Teaching
Research and development
Advice to consultants
Specialist advice to contractors
Advice on contract insurance
Appointing consultants
Valuation for insurance purposes
Development Land tax work

Managerial

Financial appraisal
Cash flow forecasting
General office administration
Contracts management
Project management
Strategic planning
Supervision of consultants
Management accounts
Contract administration
Financial management
Programming staff resources
General financial control
Improvements to cost control services
Profit and Loss accounts
Technical library
Loan applications
Cost and financial accounts
Buying (in contracting)
Cost control
Project presentation
Budget preparation
Bonus auditing
Calculating historic building grants

Technical

Preparation of
- tender documents
- final accounts
- valuations

Specification writing
Fluctuations
Estimating (if done by lower levels)
Checking final accounts
Bonus targets and payments
Production of drawings
Computer programming
Measurement of variations and valuations
Measurement for sub-contractors payments

APPENDIX 6

Description of Sample by Sector of Employment

DESCRIPTION OF SAMPLE BY SECTOR OF EMPLOYMENT

The following paragraphs detail the typical quantity surveyor in each of the major sectors of employment. Descriptions are based on modal figures from Tables 55 to 63

Private Practice

The typical quantity surveyor in private practice is aged between 31 and 35 years old. He works in a middle management position and will be responsible for £2 - £5 million of work per annum. He will earn approximately £10,000 per annum and will have a Social Class 2 background. He will have been educated in a state school to "O" Level standard only.

Government

The typical quantity surveyor in Government is aged between 36 and 40 years old. He works in a middle management position and will be responsible for £2 - £5 million of work per annum. He will earn approximately £11,000 per annum and will have a skilled Social Class 3 background. He will have been educated in a state school to "O" Level standard only.

Contracting

The typical quantity surveyor in contracting is aged between 31 and 35 years old. He will work in a middle management level and will be responsible for £2 - £5 million of work per annum. He will earn approximately £10,000 per annum and will have a Social Class 2 background. He will have been educated in a state school to "A" Level standard only.

Table 55 Distribution of sample by age and sector of employment

CATEGORY	PRIVATE PRACTICE (N=183) %	GOVT (N=102) %	CONTRACTING (N=132) %	TOTAL SAMPLE (N=447) %
LE 25	1	1	2	1
26-30	17	14	26	19
31-35	[22]	16	[32]	[23]
36-40	17	[20]	15	17
41-45	14	15	9	12
46-50	13	10	7	9
51-55	10	19	5	12
56-60	5	4	2	5
61 PLUS	2	3	2	2

Boxed figures indicate modal group for each category.

Table 56 Distribution of sample by adjusted management level and sector of employment.

CATEGORY	PRIVATE PRACTICE (N=177) %	GOVT (N=101) %	CONTRACTING (N=131) %	TOTAL SAMPLE (N=438) %
LOWER	16	29	28	22
MIDDLE	[44]	[59]	[54]	[52]
TOP	40	12	18	26

Boxed figures indicate modal group for each category.

Table 57 Distribution of project values* per annum by sector of employment

PROJECT VALUES	PRIVATE PRACTICE (N=156) %	GOVT (N=75) %	CONTRACTING (N=123) %	TOTAL SAMPLE (N=377) %
L.T. 0.9M	10	20	14	13
1-1.9M	21	16	24	20
2-5M	[38]	[32]	[39]	[37]
6-10M	12	23	11	15
11-30M	14	9	8	11
30M+	5	-	4	4

Boxed figures indicate modal group.
*1981/82 prices.

Table 58 Distribution of sample by income* and sector of employment

	PRIVATE PRACTICE (N=156)	GOVT (N=96)	CONTRACTING (N=121)	TOTAL SAMPLE (N=400)
MODE	10000	11000	10000	10000
MEDIAN	10023	10999	9575	10300
MEAN	13713	11510	10548	12169
MINIMUM	5000	7800	3600	3600
MAXIMUM	100000	22000	28000	100000

*1981/82

Table 59 Distribution of sample by sector of employment and organisational size

	PRIVATE PRACTICE	GOVERNMENT	CONTRACTING	TOTALS
V. Small L.T. 5 People	34 9%	0	7 2%	41 11%
Small 6-249	143 43%	3 1%	62 19%	208 64%
Medium 250-2000	1 ≤1%	7 2%	22 7%	30 9 %
Large 2000+	0	25 8%	27 8%	52 16%
TOTALS	178 53%	35 11%	118 36%	331 100%

Table 60 Distribution of sample by father's social class and sector of employment

CATEGORY	PRIVATE PRACTICE (N=165) %	GOVT (N=93) %	CONTRACTING (N=124) %	TOTAL SAMPLE (N=406) %
CLASS 5 UNSKILLED	3	3	4	3
CLASS 4 SEMI-SKILLED	6	7	11	7
CLASS 3M SKILLED MANUAL	24	[37]	29	29
CLASS 3N SKILLED NON-MANUAL	15	13	14	14
CLASS 2 INTERMEDIATE	[38]	34	[35]	[36]
CLASS 1 PROFESSIONAL	13	4	7	9
DECEASED	2	2	1	2

Boxed figures indicate modal group for each category.

Table 61 Distribution of sample by age and adjusted management level

CATEGORY	LOWER MGMT (N=98) %	MIDDLE MGMT (N=227) %	TOP MGMT (N=111) %	TOTAL MGMT (N=447) %
LE 25	5	-	-	1
26-30	[45]	16	4	19
31-35	22	[26]	16	[23]
36-40	12	20	16	17
41-45	6	13	15	12
46-50	3	7	[21]	9
51-55	3	12	18	12
56-60	3	4	6	5
61 PLUS	-	1	4	2

Boxed figures indicate modal group for each category.

Table 62 Distribution of sample by income and adjusted management level

	LOWER (N=96)	MIDDLE (N=218)	TOP (N=86)	TOTAL SAMPLE (N=400)
MODE	7000	10000	15000	10000
MEDIAN	7900	10125	16033	10300
MEAN	8264	10652	20372	12169
MINIMUM	3600	6400	9000	3600
MAXIMUM	12500	22000	100000	100000

Table 63 Distribution of sample by social class and adjusted mangement level

CATEGORY	LOWER (N=90) %	MIDDLE (N=208) %	TOP (N=100) %	TOTAL SAMPLE (N=406) %
CLASS 5 UNSKILLED	2	3	4	3
CLASS 4 SEMI SKILLED	10	6	8	7
CLASS 3M SKIILED MANUAL	[37]	26	29	29
CLASS 3N SKILLED NON-MANUAL	10	17	14	14
CLASS 2 INTERMEDIATE	33	[37]	[33]	[36]
CLASS 1 PROFESSIONAL	8	9	10	9
DECEASED	-	3	2	2

Boxed figures indicate modal group for each category.

APPENDIX 7

Correlation Matrix Scale Items

Item Classifications

HAUTH	Hierarchy of Authority
APARTIC	Participation in decision making
FORMAL	Formalisation
JCL	Achievement job climate
NACH	Need for achievement
PROFES	Professionalism

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	HAUTH1	HAUTH2	HAUTH3	HAUTH4	HAUTH5	APARTIC1	APARTIC2	APARTIC3	APARTIC4	FORMAL1
HALTH1	1.0000	0.5369**	0.5489**	0.4522**	0.5007**	-0.0560	-0.0487	-0.0647	-0.0343	0.3568**
HALTH2	0.5369**	1.0000	0.6249**	0.5347**	0.4861**	-0.1060	-0.0472	-0.1233	-0.0856	0.3184**
HALTH3	0.5489**	0.6249**	1.0000	0.6834**	0.5192**	-0.0919	-0.0401	-0.0626	-0.0295	0.3062**
HALTH4	0.4522**	0.5347**	0.6834**	1.0000	0.6143**	-0.1798**	-0.1393*	-0.1705*	-0.1788**	0.4372**
HAUTH5	0.5007**	0.4861**	0.5192**	0.6143**	1.0000	-0.1623*	-0.1286	-0.1114	-0.0994	0.4132**
APARTIC1	-0.0560	-0.1060	-0.0919	-0.1798**	-0.1623*	1.0000	0.8953**	0.7376**	0.7130**	-0.3626**
APARTIC2	-0.0487	-0.0472	-0.0401	-0.1393*	-0.1286	0.8953**	1.0000	0.7738**	0.7068**	-0.3768**
APARTIC3	-0.0647	-0.1233	-0.0626	-0.1705*	-0.1114	0.7376**	0.7738**	1.0000	0.8737**	-0.4017**
APARTIC4	-0.0343	-0.0856	-0.0295	-0.1788**	-0.0994	0.7130**	0.7068**	0.8737**	1.0000	-0.4220**
FORMAL1	0.3568**	0.3184**	0.3062**	0.4372**	0.4132**	-0.3626**	-0.3768**	-0.4017**	-0.4220**	1.0000
FORMAL2	0.3982**	0.4129**	0.3438**	0.3491**	0.3785**	-0.0728	-0.0293	-0.0660	-0.0829	0.4890**
FORMAL3	0.1756**	0.1350*	0.0782	0.0722	0.1530*	0.0927	0.1206	0.0516	0.0066	0.2126**
FORMAL4	0.2568**	0.1504*	0.1012	0.1011	0.1200	0.1656*	0.1867**	0.1456*	0.0955	0.1315
FORMAL5	0.1664*	0.1184	0.0978	0.0767	0.1065	0.1474*	0.1743**	0.1251	0.0752	0.0812
FORMAL6	0.0465	-0.0636	-0.0383	-0.0235	0.0688	0.0804	0.0739	0.0400	-0.0042	0.1566*
FORMAL7	-0.0660	-0.0216	-0.0488	-0.0753	-0.0749	0.0112	0.0341	0.0042	-0.0127	-0.0905
FORMAL8	-0.0878	-0.0436	-0.0569	-0.0175	-0.0982	-0.1105	-0.1342*	-0.1378*	-0.1260	0.0433
FORMAL9	-0.1669*	-0.0691	-0.1316	-0.1196	-0.1978**	-0.0466	-0.0913	-0.0938	-0.0565	-0.1416*
FORMAL10	-0.3064**	-0.3463**	-0.3490**	-0.3907**	-0.3288**	0.1297	0.1114	0.0837	0.1279	-0.3626**
FORMAL11	0.0212	0.0309	0.0449	0.0068	0.0192	0.0397	-0.0022	0.0268	0.0437	-0.0341
FORMAL12	-0.1867**	-0.2370**	-0.1824**	-0.2836**	-0.1994**	0.0125	-0.0169	-0.0302	0.0486	-0.2530**
FORMAL13	-0.1154	-0.1281	-0.1104	-0.1385*	-0.1638*	-0.0010	-0.0311	0.0163	0.0559	-0.0605
FORMAL14	-0.1131	-0.0354	-0.0125	0.0524	-0.0463	-0.1719**	-0.1501*	-0.1370*	-0.1603*	0.1033
FORMAL15	-0.1669*	-0.2022**	-0.0710	-0.0910	-0.1616*	0.0458	0.0173	0.0672	0.0352	-0.1111
MAAUTO	0.0365	-0.0514	-0.0727	-0.1831**	-0.0690	0.1907**	0.2020**	0.2641**	0.2533**	-0.2275**
RESPOGEN	0.0346	0.0792	0.0639	-0.0381	0.0151	0.0419	0.0532	0.1108	0.0927	-0.0700
CCCPOCON	0.0266	0.0847	0.0224	-0.0371	0.0539	-0.1341*	-0.1127	0.0104	-0.0245	-0.0398
CCCCEP	0.0845	0.0570	0.0317	-0.0171	0.0497	-0.0086	0.0183	0.0684	0.0407	0.0714
ACCSEFF	0.0862	0.1094	0.0663	0.0355	0.0499	-0.1799**	-0.1628*	-0.1052	-0.1059	0.1821**
SPEPCIST	0.0412	0.0953	0.0989	0.0488	0.0515	-0.1446*	-0.1406*	-0.1148	-0.0840	0.1171
ELIACC	0.0458	-0.0085	-0.0048	-0.1143	-0.0073	0.0736	0.0449	0.1072	0.1213	-0.1308
CCAPEX	0.0147	0.0039	-0.0213	-0.1208	-0.0469	-0.0088	0.0086	0.0773	0.0700	-0.2115**
JCL1	-0.3274**	-0.3584**	-0.3416**	-0.4372**	-0.3571**	0.3556**	0.3365**	0.3220**	0.3372**	-0.5833**
JCL2	-0.1319	-0.1929**	-0.1576*	-0.1397*	-0.1277	0.0619	0.0735	0.1741**	0.1240	-0.2165**
JCL3	-0.2546**	-0.3685**	-0.3053**	-0.3207**	-0.2968**	0.3746**	0.3624**	0.4130**	0.3524**	-0.4696**
JCL4	-0.1412*	-0.0624	-0.0040	-0.1141	-0.1490*	0.1412*	0.1645*	0.1307	0.1175	-0.2780**
JCL5	-0.3156**	-0.2887**	-0.2662**	-0.2831**	-0.3436**	0.3204**	0.2970**	0.3363**	0.3110**	-0.3578**
JCL6	-0.0665	-0.0176	-0.0467	-0.0519	-0.0579	0.0155	0.0209	0.0106	0.0178	-0.1053
JCL7	-0.1065	-0.2630**	-0.1453*	-0.1658*	-0.1579*	0.2801**	0.2752**	0.2985**	0.2692**	-0.1798**
JCL8	-0.1523*	-0.1589**	-0.1910**	-0.1871**	-0.1460*	0.0614	0.1036	0.1152	0.0555	-0.1333
JCL9	-0.3017**	-0.3286**	-0.2784**	-0.4010**	-0.3406**	0.3016**	0.3053**	0.3391**	0.2896**	-0.4061**

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

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	HAUTH1	HAUTH2	HAUTH3	HAUTH4	HAUTH5	APARTIC1	APARTIC2	APARTIC3	APARTIC4	FORMAL1
PRCFES2	-0.0484	-0.1661	-0.1112	-0.1243	-0.1159	0.1152	0.1139	0.0917	0.0629	-0.0936
PRCFES3	-0.2210**	-0.2758**	-0.2716**	-0.3336**	-0.3426**	0.3426**	0.2844**	0.3154**	0.3305**	-0.5214**
PRCFES4	0.0174	0.0109	0.0717	0.0361	-0.0341	0.1822**	0.1779**	0.1750**	0.2146**	-0.0919
PRCFES5	0.0161	-0.0399	-0.0558	-0.0926	-0.0775	0.2006**	0.2467**	0.2561**	0.2196**	-0.0374
PRCFES6	-0.1154	-0.1856**	-0.1658*	-0.1769**	-0.1937**	0.1374*	0.0918	0.0932	0.0935	-0.3337**
PRCFES7	-0.0523	-0.1126	-0.0828	-0.1350*	-0.1148	0.3072**	0.3549**	0.3357**	0.2818**	-0.1958**
PRCFES8	-0.2759**	-0.2661**	-0.2272**	-0.3116**	-0.3539**	0.3752**	0.3521**	0.3622**	0.3948**	-0.6143**
PRCFES9	-0.1313	-0.0983	-0.1203	-0.1188	-0.1031	0.0638	0.0961	0.0616	0.0890	-0.0837
PRCFES10	-0.0328	-0.0424	-0.1273	-0.0954	-0.0465	0.1775**	0.1903**	0.2021**	0.1783**	-0.1709**
PRCFES11	-0.0662	-0.0754	-0.1243	-0.1795**	-0.1458*	0.1860**	0.2226**	0.1214	0.1029	-0.1172
PRCFES12	-0.1810**	-0.2744**	-0.3064**	-0.3291**	-0.3564**	0.2187**	0.2243**	0.2430**	0.2099**	-0.4177**
PRCFES13	0.0131	-0.0226	-0.0605	-0.0763	-0.0460	0.0981	0.1195	0.1118	0.1057	-0.0987
PRCFES14	0.0745	-0.0192	-0.1024	-0.0734	-0.0166	0.0188	0.0161	0.0198	0.0243	-0.0552
PRCFES15	-0.0136	-0.0240	-0.0342	-0.0756	-0.0049	0.2583**	0.2946**	0.2156**	0.2046**	-0.1353*
PRCFES16	-0.0318	-0.1088	-0.0986	-0.0949	-0.0654	0.0955	0.1163	0.0487	0.0581	-0.0950
PRCFES17	0.0328	-0.0029	0.0072	-0.0522	0.0221	0.2647**	0.3191**	0.2433**	0.2087**	-0.0261
PRCFES18	-0.2165**	-0.2666**	-0.2849**	-0.3378**	-0.2614**	0.3227**	0.2751**	0.2949**	0.2987**	-0.4246**
PRCFES19	-0.0479	-0.1490*	-0.1784**	-0.1688*	-0.0535	0.1016	0.1356*	0.1149	0.0480	-0.1086
PRCFES20	0.0565	0.0264	0.0127	-0.0184	0.1024	0.0883	0.1208	0.1428*	0.1373*	-0.0098
PRCFES21	0.0350	0.0231	-0.0124	-0.0763	-0.0780	0.0414	0.0621	0.0619	0.0567	-0.0731
PRCFES22	0.0062	0.0066	0.0037	-0.0457	-0.0231	0.0893	0.1197	0.0935	0.0696	-0.0631
PRCFES23	-0.0653	-0.1600	-0.0829	-0.0848	-0.0857	0.1940**	0.1959**	0.2153**	0.2097**	-0.1202
PRCFES24	-0.0418	-0.1129	-0.1115	-0.1689	-0.1018	0.0836	0.1161	0.1284	0.1065	-0.1395
PRCFES25	-0.1014	-0.0762	-0.0567	0.0275	-0.0859	0.1025	0.1058	0.1694*	0.1599*	-0.0730

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	HAUTH1	HAUTH2	HAUTH3	HAUTH4	HAUTH5	APARTIC1	APARTIC2	APARTIC3	APARTIC4	FORMAL1
JCL10	-0.2285**	-0.2593**	-0.2239**	-0.3377**	-0.3344**	0.3114**	0.2921**	0.3077**	0.2873**	-0.4033**
JCL11	-0.0881	-0.2227**	-0.2476**	-0.2537**	-0.2141**	0.3547**	0.3435**	0.3328**	0.2490**	-0.2785**
JCL12	-0.2026**	-0.2599**	-0.1930**	-0.2769**	-0.2746**	0.3858**	0.3624**	0.4367**	0.3928**	-0.3825**
JCL13	-0.1448*	-0.2597**	-0.2312**	-0.2309**	-0.2299**	0.1488*	0.1494*	0.2138**	0.1490*	-0.2599**
JCL14	-0.1354	-0.1516*	-0.1469*	-0.2066**	-0.1476*	0.2478**	0.2419**	0.2963**	0.2620**	-0.2476**
JCL15	-0.2026**	-0.1542**	-0.1552*	-0.1394**	-0.2423**	0.4390**	0.4076**	0.4613**	0.4494**	-0.3962**
JCL16	-0.1352*	-0.2303**	-0.2173**	-0.2247**	-0.1936**	0.3691**	0.3532**	0.3085**	0.2190**	-0.2356**
JCL17	0.0488	-0.1234	-0.0851	-0.0420	-0.0430	0.2413**	0.2108**	0.2402**	0.2312**	-0.1155
JCL18	-0.0153	-0.0571	-0.0524	-0.1661	-0.0741	0.2793**	0.2979**	0.2447**	0.2267**	-0.1147
JCL19	-0.0595	-0.1706**	-0.1047	-0.1797**	-0.1334	0.3011**	0.2600**	0.2486**	0.2049**	-0.1977**
JCL20	-0.1213	-0.2228**	-0.1957**	-0.2382**	-0.2031**	0.3690**	0.3052**	0.3398**	0.2666**	-0.3037**
JCL21	-0.1868	-0.2811**	-0.1972**	-0.2630**	-0.2761**	0.4218**	0.4502**	0.4534**	0.3631**	-0.3679**
JCL22	-0.1861**	-0.2475**	-0.2133**	-0.2864**	-0.2918**	0.2813**	0.2580**	0.2620**	0.2568**	-0.3791**
JCL23	-0.1811**	-0.2514**	-0.1893**	-0.1891**	-0.1915**	0.2835**	0.2720**	0.2930**	0.2809**	-0.2742**
JCL24	-0.1536*	-0.2627**	-0.2757**	-0.2068**	-0.2370**	0.2687**	0.2703**	0.2894**	0.2428**	-0.3022**
JCL25	-0.1332	-0.2675**	-0.2345**	-0.2678**	-0.2922**	0.3575**	0.3202**	0.3633**	0.3323**	-0.3294**
PACH1	0.0039	-0.0555	-0.0483	-0.0524	-0.0195	0.0525	0.0261	0.1171	0.0719	-0.0788
PACH2	0.0239	0.0793	0.0448	-0.0409	0.0402	0.1436*	0.1448*	0.1335	0.1513*	0.0207
PACH3	-0.0151	-0.0642	-0.0356	-0.0952	-0.0381	0.2639**	0.1967**	0.2013**	0.1797**	-0.1247
PACH4	0.0048	-0.0295	-0.0153	-0.0026	-0.0074	0.1237	0.1300	0.1625*	0.1609*	-0.0503
PACH5	0.0531	-0.0598	-0.0072	-0.0656	-0.0941	-0.0048	-0.0614	0.0085	0.0347	-0.0831
PACH6	-0.0229	-0.0258	-0.0273	0.0063	-0.0205	-0.1436*	-0.1110	-0.0773	-0.0735	0.1078
PACH7	-0.0359	-0.0643	-0.0564	-0.0890	-0.0606	0.1911**	0.1720**	0.1634*	0.1457*	-0.1518*
PACH8	-0.1510*	-0.0690	-0.0449	-0.0931	-0.0562	0.0294	0.0422	0.0321	0.0069	-0.0391
PACH9	-0.0185	-0.0433	-0.0015	0.0012	0.0540	-0.0255	-0.0459	0.0093	-0.0161	0.1186
PACH10	-0.0564	-0.1868**	-0.0991	-0.1045	-0.1159	0.0599	0.0473	0.0395	0.0163	-0.0642
PACH11	-0.0369	-0.0146	-0.0013	0.0162	-0.0534	-0.1518*	-0.1612*	-0.0994	-0.1033	-0.0416
PACH12	-0.0625	-0.0840	-0.1184	-0.0537	-0.0456	-0.0016	0.0012	0.0545	0.0342	-0.0007
PACH13	0.0044	-0.0197	0.0179	0.0012	0.0301	0.0199	0.0453	0.0288	0.0270	0.0599
PACH14	-0.0626	-0.0517	-0.0284	-0.1556	-0.0460	0.1841**	0.1878**	0.1927**	0.1856**	-0.1472*
PACH15	-0.0161	-0.0248	-0.0195	-0.0191	-0.0171	-0.0339	-0.0322	-0.0390	-0.0204	-0.0452
PACH16	-0.0382	-0.0897	-0.1278	-0.0817	-0.0280	-0.0392	-0.0481	-0.0367	0.0117	0.0080
PACH17	-0.0056	-0.0059	0.0419	0.0513	0.0128	-0.0952	-0.0465	0.0141	-0.0021	0.0532
PACH18	-0.0531	-0.0339	-0.0213	-0.0625	-0.0466	0.1221	0.1183	0.1039	0.1038	-0.0582
PACH19	-0.1117	-0.1322	-0.0731	-0.0978	-0.1057	0.0416	0.0185	0.0782	0.0992	-0.0746
PACH20	-0.0566	-0.0595	-0.0514	0.0092	-0.1075	-0.0839	-0.1032	-0.0611	-0.0436	-0.0033
PACH21	-0.0464	-0.1239	-0.0283	0.0571	-0.0687	-0.0810	-0.0142	-0.0094	-0.0087	-0.0673
PACH22	-0.0525	-0.0274	-0.0653	-0.0720	-0.0974	0.0396	0.0364	0.0335	0.0236	0.0334
PACH23	0.1063	-0.0277	0.0362	0.0619	0.0151	-0.0086	-0.0201	-0.0116	-0.0030	0.0624
PACH24	-0.0223	-0.0773	-0.0581	-0.0426	-0.0527	0.1392*	0.1249	0.1078	0.1213	-0.1394
PRCFES1	-0.1310	-0.0972	-0.0255	-0.0562	-0.0601	0.1328	0.1905**	0.1994**	0.1772**	-0.1008

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FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	FORMAL2	FORMAL3	FORMAL4	FORMAL5	FORMAL6	FORMAL7	FORMAL8	FORMAL9	FORMAL10	FORMAL11
MALTH1	0.3712**	0.1756**	0.2563**	0.1664*	0.0405	-0.0600	-0.0878	-0.1689*	-0.3084**	0.0212
MALTH2	0.4129**	0.1350*	0.1544*	0.1194	-0.0838	-0.0216	-0.0436	-0.0891	-0.3463**	0.0309
MALTH3	0.3438**	0.0782	0.1012	0.0978	-0.0383	-0.0488	-0.0569	-0.1316	-0.3490**	0.0469
MALTH4	0.3451**	0.0722	0.1011	0.0767	-0.0235	-0.0751	-0.0179	-0.1196	-0.3967**	0.0068
MALTH5	0.3785**	0.1530*	0.1209	0.1065	0.0668	-0.0749	-0.0982	-0.1978**	-0.3288**	0.0192
APARTIC1	-0.0728	0.0627	0.1656*	0.1474*	0.0804	0.0112	-0.1105	-0.0466	0.1297	0.0397
APARTIC2	-0.0253	0.1296	0.1867**	0.1743**	0.0736	0.0341	-0.1342*	-0.0913	0.1114	-0.0022
APARTIC3	-0.0660	0.0516	0.1456*	0.1251	0.0400	0.0042	-0.1378*	-0.0938	0.0837	0.0268
APARTIC4	-0.0829	0.0066	0.0955	0.0752	-0.0242	-0.0127	-0.1260	-0.0565	0.1279	0.0437
FCRPAL1	0.4850**	0.2128**	0.1319	0.0812	0.1566*	-0.0965	0.0433	-0.1416*	-0.3626**	-0.0341
FCRPAL2	1.0000	0.3717**	0.3484**	0.2287**	0.1415*	-0.0834	-0.0344	-0.2184**	-0.2945**	0.0046
FCRPAL3	0.3717**	1.0000	0.5633**	0.4690**	0.3962**	-0.0742	-0.2602**	-0.2439**	-0.2353**	-0.0398
FCRPAL4	0.3464**	0.5600**	1.0000	0.6696**	0.3511**	-0.0560	-0.2927**	-0.3185**	-0.1793**	-0.0825
FCRPAL5	0.2267**	0.4659**	0.6696**	1.0000	0.4278**	-0.0993	-0.3385**	-0.3128**	-0.1880**	-0.0554
FCRPAL6	0.1415*	0.3962**	0.3511**	0.4278**	1.0000	-0.2248**	-0.3576**	-0.3107**	-0.1344*	-0.1692*
FCRPAL7	-0.0834	-0.0742	-0.0560	-0.0993	-0.2248**	1.0000	0.4050**	0.3140**	0.1945**	0.2661**
FCRPAL8	-0.0344	-0.2602**	-0.2927**	-0.3385**	-0.3576**	0.4050**	1.0000	0.3619**	0.2287**	0.1856**
FCRPAL9	-0.2184**	-0.2439**	-0.3185**	-0.3128**	-0.3107**	0.3140**	0.3619**	1.0000	0.3034**	0.1886*
FCRPAL10	-0.2945**	-0.2353**	-0.1793**	-0.1880**	-0.1344*	0.1945**	0.2287**	0.3034**	1.0000	0.1972**
FCRPAL11	0.0346	-0.0398	-0.0325	-0.0554	-0.1692*	0.2661**	0.1856**	0.1685*	0.1972**	1.0000
FCRPAL12	-0.1712**	-0.1389*	-0.2084**	-0.1599*	-0.1536*	0.2030**	0.1442*	0.2335**	0.5964**	0.2984**
FCRPAL13	-0.0805	-0.1981**	-0.2494**	-0.2373**	-0.2853**	0.4171**	0.4960**	0.4822**	0.3649**	0.2713**
FCRPAL14	-0.0310	-0.1091	-0.2104**	-0.1389*	-0.1585*	0.3111**	0.3789**	0.3132**	0.1245	0.1726**
FCRPAL15	-0.1480*	-0.1585*	-0.1514*	-0.0819	-0.1137	0.2073**	0.2171**	0.2631**	0.2172**	0.1930**
PAPAUTO	-0.0369	0.1065	0.1711**	0.1422*	0.0221	-0.1216	-0.1762**	-0.1726**	-0.0494	-0.0612
REIPOGEN	0.0252	0.0644	0.1026	0.1045	0.0392	-0.0639	-0.1290	-0.1711**	-0.1979**	-0.1117
CCCFCCOM	0.0431	0.0492	0.0432	-0.0174	-0.0271	-0.0708	-0.1002	-0.1184	-0.1549*	-0.0695
CCCCEP	0.0756	0.1472*	0.1841**	0.1693*	0.0558	-0.0793	-0.0970	-0.1418*	-0.1865**	-0.0946
PCCSEFF	0.1184	-0.0197	0.0547	0.0522	-0.0108	-0.0395	0.0552	-0.0209	-0.1452*	-0.0583
SREPOIST	0.0747	-0.0786	-0.0579	-0.0689	-0.1213	-0.0541	0.0836	-0.0385	-0.2312**	0.0374
ELIAGG	-0.0658	0.0071	-0.0014	0.0246	-0.0272	-0.0925	-0.0288	-0.1030	-0.1252	-0.0831
CCPPEX	-0.0447	-0.0389	0.0057	0.0249	-0.0594	-0.0603	-0.0459	-0.0603	-0.0617	-0.0342
JCL1	-0.4359**	-0.1211	-0.1342*	-0.0916	-0.1077	0.0965	-0.0303	0.1124	0.3736**	-0.0542
JCL2	-0.1217	0.0510	0.0431	0.0139	0.1006	0.0512	0.0046	-0.0263	0.1382*	-0.0169
JCL3	-0.2564**	0.0091	0.0713	0.0504	-0.0036	0.1045	-0.0645	-0.0087	0.3500**	-0.0190
JCL4	-0.1867**	-0.1489*	-0.1192	-0.1463*	-0.1189	0.0157	0.0147	0.0529	0.1949**	-0.0227
JCL5	-0.2042**	-0.0672	-0.0554	-0.0451	-0.0295	0.1163	0.0264	0.1510*	0.2750**	0.0059
JCL6	-0.0994	0.0519	0.0328	0.0223	0.0562	-0.0331	-0.1347*	-0.0792	0.0780	-0.0314
JCL7	-0.1094	-0.0349	0.0440	-0.0168	0.0355	0.0284	-0.0713	-0.0180	0.0632	-0.0626
JCL8	-0.0832	0.0616	0.0751	0.0571	0.0847	0.0858	-0.0733	0.0170	0.1828**	-0.0160
JCL9	-0.2693**	-0.0387	-0.0095	-0.0396	0.0039	0.0696	0.0360	0.0832	0.2340**	-0.0888

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	FORMAL2	FORMAL3	FORMAL4	FORMAL5	FORMAL6	FORMAL7	FORMAL8	FORMAL9	FORMAL10	FORMAL11
JCL10	-0.2817**	-0.0401	0.0477	0.0474	0.0439	0.0271	-0.0501	0.0517	0.3251**	-0.0543
JCL11	-0.0868	0.1163	0.1275	0.0555	0.1122	0.0609	-0.0363	0.0383	0.1482*	0.0224
JCL12	-0.1978**	-0.0406	0.0251	-0.0033	0.0352	0.0738	-0.0448	0.0477	0.2422**	-0.0334
JCL13	-0.1729**	-0.0921	-0.1321	-0.0478	0.0539	-0.0444	-0.1152	0.0355	0.1779**	-0.0931
JCL14	-0.1124	0.0696	0.0744	0.0411	0.0650	-0.0398	-0.0871	-0.0444	0.1241	-0.0079
JCL15	-0.2738**	-0.0197	0.0558	0.0224	-0.0242	0.0335	-0.0074	0.1298	0.2553**	0.0197
JCL16	-0.0855	0.1245	0.1543*	0.1010	0.1402*	0.1283	-0.0609	0.0474	0.1523*	-0.0499
JCL17	-0.0359	0.1147	0.1015	0.0608	0.1876**	-0.1072	-0.1436*	-0.1825	0.0731	-0.1014
JCL18	-0.0341	0.1357	0.1653**	0.1228	0.0376	0.0501	-0.1091	-0.0312	0.0926	-0.0161
JCL19	-0.1011	0.1352*	0.2127**	0.1384*	0.1279	-0.0114	-0.1328	-0.1430*	0.1564*	-0.0752
JCL20	-0.1388*	0.0628	0.1244	0.1223	0.1641*	0.0601	-0.1383*	-0.0861	0.2100**	-0.0932
JCL21	-0.1117	0.1106	0.1783**	0.1132	0.0190	0.1418*	-0.0538	0.0606	0.2161**	0.0303
JCL22	-0.1965**	-0.0585	-0.0535	-0.1345	-0.0916	0.0707	0.1051	0.1410*	0.2088**	-0.0410
JCL23	-0.1153	-0.0396	-0.0417	-0.0953	0.0598	0.0465	0.0194	0.0443	0.2021**	-0.1142
JCL24	-0.1755**	0.0317	0.1654*	0.1214	0.1003	-0.0448	-0.2080**	-0.0749	0.1275	-0.1009
JCL25	-0.1858**	0.0103	0.1023	0.0343	0.0659	0.0725	-0.0497	0.0492	0.2156**	0.0066
PSCP1	-0.0294	-0.0647	-0.0002	-0.0020	-0.0146	0.0238	0.1566*	0.1976**	0.0884	0.0461
PSCP2	0.0732	0.0761	-0.0129	0.0695	-0.0101	-0.0538	-0.0506	-0.0269	0.0250	-0.0569
PSCP3	-0.0317	-0.0128	0.0017	-0.0478	-0.0171	0.1378*	0.0844	0.0349	0.0759	0.1048
PSCP4	-0.0049	-0.0369	-0.0892	0.0002	-0.0658	-0.0863	0.1293	-0.0076	-0.0034	-0.0085
PSCP5	-0.0389	-0.1147	-0.0929	-0.1074	-0.1270	0.0553	0.1114	0.0299	0.1595*	0.0490
PSCP6	0.0771	-0.0830	-0.0855	-0.1497*	0.0437	-0.0059	0.0574	-0.0629	0.0121	0.0493
PSCP7	-0.0439	-0.0439	-0.0497	-0.0431	-0.0891	0.1447*	0.0602	0.0727	0.0475	0.0901
PSCP8	0.0287	-0.0006	0.0030	-0.0554	0.0263	0.0026	-0.0254	0.0381	0.0459	-0.0030
PSCP9	0.0492	-0.0317	-0.0345	-0.0294	0.0239	0.0741	0.1266	0.1685*	0.0416	0.0853
PSCP10	0.0385	-0.0674	-0.0558	-0.0616	-0.0035	0.0490	0.0577	-0.0167	0.0523	-0.0538
PSCP11	-0.0356	-0.0763	-0.1039	-0.1018	-0.0241	0.0143	0.0385	0.0323	0.0113	0.0027
PSCP12	0.0460	-0.1196	-0.0541	-0.0751	-0.0338	-0.0078	0.0920	0.0841	-0.0296	-0.0157
PSCP13	-0.0113	0.0658	0.0547	0.0152	0.0265	0.0396	0.0114	0.0383	-0.0199	-0.0360
PSCP14	-0.0735	-0.0312	-0.0316	-0.0171	0.0302	-0.0221	-0.0512	0.0311	0.0394	0.0722
PSCP15	-0.0487	-0.2477**	-0.1229	-0.1381*	-0.0960	0.0967	0.1442*	0.2345**	0.0613	0.0739
PSCP16	0.0050	-0.0333	0.0479	0.0266	-0.0163	-0.1266	-0.0211	0.1231	0.0959	0.0566
PSCP17	-0.0319	-0.1697*	-0.1545*	-0.1000	-0.0918	0.0114	0.1363*	0.1335	-0.0529	0.0391
PSCP18	0.0365	0.0126	0.0101	-0.0331	-0.0446	0.0172	0.0522	0.0132	0.0671	0.0484
PSCP19	-0.1352	-0.0340	-0.1028	-0.0648	-0.0586	0.0426	0.0635	0.0556	0.0669	0.0553
PSCP20	-0.0469	-0.1196	-0.1111	-0.1542*	-0.0893	0.0089	0.0746	0.0468	-0.0366	0.1136
PSCP21	-0.0954	-0.1296	-0.0669	-0.0705	-0.0370	0.0422	0.0492	0.0458	0.0958	-0.0347
PSCP22	0.1341	0.0892	0.0518	0.0354	0.0929	0.0137	-0.0424	-0.0351	-0.0380	-0.0501
PSCP23	0.0183	-0.0349	0.0143	0.0587	0.0688	0.0648	0.0743	-0.0213	0.0374	0.0593
PSCP24	-0.0267	0.0467	0.0369	-0.0323	0.0097	0.0536	0.0174	-0.0273	0.0914	0.1511*
PSCFES1	-0.1257	-0.0230	0.0166	0.0311	0.0977	-0.1347*	-0.1240	-0.1047	0.0196	-0.1439*

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FILE QSTUDY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	FORMAL2	FORMAL3	FORMAL4	FORMAL5	FORMAL6	FORMAL7	FORMAL8	FORMAL9	FORMAL10	FORMAL11
PRCFES2	-0.1163	0.0256	0.0349	0.0636	0.1152	-0.0742	-0.1499**	-0.1010	0.0598	-0.0591
PRCFES3	-0.3160**	-0.0569	-0.1222	-0.1556*	-0.1979**	0.0595	-0.0078	0.1151	0.1921**	0.0255
PRCFES4	-0.1261	-0.0699	-0.0292	0.0268	-0.0038	0.0236	-0.0605	-0.0773	-0.0376	0.0272
PRCFES5	0.0643	0.1582*	0.0423	-0.0030	0.0462	0.0018	-0.0593	-0.0360	-0.0021	0.0117
PRCFES6	-0.2576**	-0.0553	-0.0643	-0.0306	-0.1213	0.0366	0.0221	0.1234	0.2193**	0.0509
PRCFES7	0.0119	0.1575*	0.1432*	0.1473*	0.0931	0.0391	-0.0647	-0.0693	0.1147	0.1137
PRCFES8	-0.3579**	-0.1088	-0.1018	-0.0900	-0.1712**	0.0616	-0.0070	0.1019	0.2946**	0.0247
PRCFES9	-0.0759	0.0721	0.0045	0.0794	0.0156	-0.0382	-0.0779	-0.0629	0.0203	-0.0341
PRCFES10	0.0058	0.0169	0.0536	0.0416	-0.0023	-0.0885	-0.0810	-0.0915	0.0162	-0.0476
PRCFES11	-0.0767	0.1670	0.1612*	0.1456*	0.1508*	-0.0421	-0.1713**	-0.1904**	0.0534	-0.1450*
PRCFES12	-0.2150**	-0.0288	-0.1119	-0.1221	-0.1278	0.0245	0.0597	0.1355*	0.2271**	-0.0198
PRCFES13	-0.0861	-0.0117	-0.0190	-0.0289	0.0424	-0.0406	-0.1208	-0.0984	-0.0052	-0.0401
PRCFES14	0.0270	0.0468	0.0365	0.0543	0.1283	-0.0813	-0.0582	-0.0698	-0.0156	-0.0391
PRCFES15	-0.0643	0.0826	0.0797	0.1291	0.0935	-0.0519	-0.1879**	-0.1502*	-0.0267	-0.1333
PRCFES16	-0.0739	0.0297	-0.0217	0.0147	0.0175	-0.0515	-0.0651	-0.1163	0.1056	-0.0771
PRCFES17	0.0369	0.1234	0.1937**	0.1642*	0.1382	-0.1014	-0.2599**	-0.2550**	-0.0604	-0.1456*
PRCFES18	-0.2555**	-0.0418	0.0213	0.0509	-0.0074	0.1244	-0.0052	0.0478	0.2772**	-0.0299
PRCFES19	-0.0569	0.1151	0.0915	0.0979	0.0660	0.0621	-0.0260	-0.0783	0.1293	-0.0116
PRCFES20	0.0179	0.0769	0.0326	0.0572	0.0472	-0.0092	-0.0467	-0.0792	-0.0451	-0.0574
PRCFES21	-0.1119	-0.0134	0.0368	0.0536	0.0565	-0.1019	-0.1317	-0.1101	0.0739	-0.0069
PRCFES22	-0.0749	0.0069	0.0735	0.1051	0.1013	-0.1085	-0.2083**	-0.1748**	-0.0159	-0.1259
PRCFES23	-0.0189	-0.0469	0.0446	0.0632	0.1272	-0.0236	-0.0549	-0.0772	0.0693	-0.0635
PRCFES24	0.0373	0.0603	0.0576	0.0694	0.1175	-0.0135	-0.0706	-0.1040	0.0263	-0.0799
PRCFES25	-0.0536	-0.0576	0.0546	0.0655	0.1158	-0.0196	-0.0246	-0.0274	0.0511	-0.0276

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FILE QSTUDY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	FORMAL12	FORMAL13	FORMAL14	FORMAL15	RANAUTO	RESPOGEN	COOPOCON	OOCOEP	MODSEFF	SKEPDIST
HALTH1	-0.1867**	-0.1194	-0.1131	-0.1669*	0.0065	0.0346	0.0266	0.0845	0.0802	0.0412
HALTH2	-0.2379**	-0.1281	-0.0354	-0.2022**	-0.0514	0.0792	0.0847	0.0570	0.1084	0.0953
HAUTH3	-0.1824**	-0.1104	-0.0125	-0.0710	-0.0727	0.0630	0.0224	0.0317	0.0663	0.0989
HALTH4	-0.2836**	-0.1385*	0.0524	-0.0910	-0.1831**	-0.0381	-0.0371	-0.0171	0.0355	0.0488
HAUTH5	-0.1954**	-0.1638*	-0.0463	-0.1616*	-0.0690	0.0151	0.0539	0.0497	0.0499	0.0515
APARTIC1	0.0125	-0.0010	-0.1719**	0.0458	0.1907**	0.0419	-0.1341*	-0.0086	-0.1799**	-0.1446*
APARTIC2	-0.0169	-0.0311	-0.1531*	0.0173	0.2120**	0.0532	-0.1127	0.0183	-0.1628*	-0.1406*
APARTIC3	-0.0302	0.0163	-0.1379*	0.0672	0.2641**	0.1104	0.0104	0.0684	-0.1052	-0.1148
APARTIC4	0.0486	0.0559	-0.1613*	0.0352	0.2533**	0.0927	-0.0245	0.0497	-0.1059	-0.0840
FCAPAL1	-0.2530**	-0.0605	0.1033	-0.1111	-0.2275**	-0.0700	-0.0398	0.0714	0.1821**	0.1171
FCAPAL2	-0.1712**	-0.0805	-0.0310	-0.1480*	-0.0369	0.0252	0.0431	0.0756	0.1184	0.0747
FCAPAL3	-0.1389*	-0.1581**	-0.1091	-0.1595*	0.1065	0.0644	0.0492	0.1472*	-0.0107	-0.0786
FCAPAL4	-0.2064**	-0.2484**	-0.2134**	-0.1518*	0.1711**	0.1026	0.0432	0.1840**	0.0547	-0.0578
FCAPAL5	-0.1559*	-0.2373**	-0.1399*	-0.0819	0.1422*	0.1045	-0.0174	0.1693*	0.0522	-0.0689
FCAPAL6	-0.1536*	-0.2453**	-0.1595*	-0.1137	0.0221	0.0392	-0.0271	0.0558	-0.0108	-0.1213
FCAPAL7	0.2030**	0.4171**	0.3111**	0.2073**	-0.1216	-0.0639	-0.0708	-0.0793	-0.0395	-0.0541
FCAPAL8	0.1442*	0.4964**	0.3789**	0.2173**	-0.1762**	-0.1290	-0.1002	-0.0973	0.0552	0.0836
FCAPAL9	0.2335**	0.4822**	0.3132**	0.2631**	-0.1728**	-0.1711**	-0.1184	-0.1418*	-0.0209	-0.0385
FCAPAL10	0.5964**	0.3649**	0.1245	0.3172**	-0.0494	-0.1975**	-0.1549*	-0.1865**	-0.1452*	-0.2312**
FCAPAL11	0.2984**	0.2713**	0.1725**	0.1930**	-0.0612	-0.1117	-0.0693	-0.0946	-0.0563	0.0374
FCAPAL12	1.0000	0.3117**	0.1043	0.2948**	-0.0490	-0.1731**	-0.1397*	-0.1847**	-0.1619*	-0.1192
FCAPAL13	0.3117**	1.0000	0.3956**	0.3526**	-0.1727**	-0.1590*	-0.0943	-0.1131	0.0262	0.0171
FCAPAL14	0.1043	0.3956**	1.0000	0.3270**	-0.2203**	-0.1253	-0.0916	-0.0739	0.0538	0.0682
FCAPAL15	0.2948**	0.3526**	0.3270**	1.0000	-0.0936	-0.1431*	-0.1052	-0.1085	-0.0921	-0.0665
PANAUTO	-0.0490	-0.1727**	-0.2203**	-0.0936	1.0000	0.4552**	0.4079**	0.3787**	0.1687*	0.2956**
RESPOGEN	-0.1731**	-0.1590*	-0.1253	-0.1431*	0.4552**	1.0000	0.6872**	0.5671**	0.4919**	0.2336**
COOPOCON	-0.1397*	-0.0943	-0.0916	-0.1052	0.4079**	0.6872**	1.0000	0.5738**	0.5048**	0.2402**
OOCOEP	-0.1847**	-0.1131	-0.0739	-0.1085	0.3787**	0.5671**	0.5738**	1.0000	0.5890**	0.2723**
MODSEFF	-0.1619*	0.0262	0.0538	-0.0921	0.1687*	0.4919**	0.5048**	0.5890**	1.0000	0.4235**
SKEPDIST	-0.1152	0.0171	0.0682	-0.0665	0.2956**	0.2336**	0.2402**	0.2723**	0.4235**	1.0000
BLIAGG	-0.0623	-0.1040	-0.1081	-0.0604	0.6559**	0.3345**	0.2849**	0.2889**	0.2174**	0.5149**
CCAFEX	-0.0173	-0.0441	-0.1624*	-0.0495	0.6440**	0.3715**	0.3445**	0.2939**	0.2181**	0.4734**
ACL1	0.2448**	0.1552*	-0.0669	0.1677*	0.1877**	0.0387	-0.0344	-0.0474	-0.1320	-0.1365*
ACL2	0.0971	0.0236	-0.0347	0.0520	0.1468*	0.0718	0.0807	0.0849	-0.0064	-0.0604
ACL3	0.1720**	0.1619*	-0.0442	0.1325	0.2586**	0.0928	0.0155	0.0335	-0.0679	-0.1753**
ACL4	0.1426*	0.0449	-0.0815	0.0491	0.1442*	-0.0404	0.0129	0.0226	-0.0879	-0.0012
ACL5	0.1147	0.1205	0.0154	0.1956**	0.1006	-0.0262	-0.0979	-0.0615	-0.1375*	-0.0946
ACL6	-0.0134	0.0259	-0.1394*	0.0510	0.0414	-0.0276	0.0777	0.0644	-0.0104	-0.0704
ACL7	-0.0468	-0.0799	-0.1817**	-0.0167	0.1230	0.0027	-0.0707	0.0238	-0.0799	-0.0751
ACL8	0.0542	-0.0312	-0.1353*	0.1041	0.0632	0.0206	0.0614	0.1094	-0.0171	-0.2005**
ACL9	0.1183	0.0276	-0.0442	0.0707	0.1550*	-0.0317	-0.0386	-0.0776	-0.1570*	-0.0735

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	FORMAL12	FORMAL13	FORMAL14	FORMAL15	MANAUTO	RESPOGEN	COOPOCON	DOCDEP	MODSEFF	SKEPOIST
PRCFES2	-0.0138	-0.1071	-0.1333	-0.0993	0.1163	0.0547	0.0134	0.0922	-0.0758	-0.1142
PRCFES3	0.2469**	0.1058	-0.0510	0.1406*	0.2100**	0.0242	-0.0367	-0.1439*	-0.1632*	0.0165
PRCFES4	-0.0514	0.0230	-0.0376	-0.0170	0.0470	0.0958	-0.0298	-0.0041	-0.0501	-0.0818
PRCFES5	-0.0169	-0.0199	-0.0542	-0.0891	0.0897	0.0749	-0.0182	0.0217	-0.0426	-0.0887
PRCFES6	0.2052**	0.0603	0.0347	0.1021	0.1116	0.0091	0.0175	-0.0595	-0.1075	-0.0931
PRCFES7	0.0132	0.0063	-0.0379	0.0643	0.1359*	-0.0405	-0.0544	-0.0064	-0.1185	-0.1501*
PRCFES8	0.2662**	0.0549	-0.0243	0.1258	0.2825**	0.0570	-0.0132	-0.0734	-0.1323	-0.0199
PRCFES9	-0.0188	-0.0340	-0.1352*	-0.0869	0.0885	0.0832	0.0598	0.0152	0.0042	-0.0093
PRCFES10	-0.0741	-0.0859	-0.1943**	-0.0912	0.2253**	0.0697	0.1066	0.1340*	-0.0182	-0.0670
PRCFES11	0.0356	-0.1631*	-0.1912**	-0.0696	0.1239	0.1300	0.0111	0.0590	-0.0007	-0.1710**
PRCFES12	0.0286	0.0474	0.0026	0.1100	0.1366*	-0.0585	-0.0267	-0.1694*	-0.1777**	-0.1380*
PRCFES13	-0.0457	-0.0746	-0.1254	-0.1475*	0.1082	0.0651	-0.0112	0.0235	-0.0167	-0.0899
PRCFES14	-0.1036	-0.1118	-0.1195	-0.0917	0.0797	-0.0178	0.0715	0.0554	0.0145	-0.0257
PRCFES15	-0.0755	-0.1013	-0.1456*	-0.1024	0.1836**	0.1379*	0.0331	0.0755	0.0163	-0.1427*
PRCFES16	0.0852	-0.0221	-0.0665	-0.0668	-0.0377	-0.0210	-0.0481	-0.0279	-0.1120	-0.1493*
PRCFES17	-0.0122	-0.1446*	-0.1837**	-0.0711	0.0803	0.1446*	0.0474	0.1227	-0.0488	-0.1225
PRCFES18	0.1558*	0.0608	-0.0157	0.0718	0.2355**	0.0559	-0.0055	-0.0423	-0.0652	-0.0744
PRCFES19	0.0381	0.0110	0.0298	0.0423	0.0737	0.0195	0.0357	0.0113	-0.0038	-0.1305
PRCFES20	-0.0552	-0.0062	-0.0784	-0.0142	-0.0398	-0.0246	-0.0913	-0.0383	-0.1044	-0.0236
PRCFES21	0.0674	-0.0327	-0.1543*	-0.0670	0.0847	0.0072	-0.0111	-0.0125	-0.0441	0.0025
PRCFES22	-0.0576	-0.1991**	-0.2072**	-0.1167	0.0585	0.0531	0.0112	0.0607	-0.0533	-0.1399*
PRCFES23	0.0153	-0.0373	-0.1535*	-0.0212	-0.0597	0.0381	0.0223	0.0441	-0.0292	-0.1609*
PRCFES24	-0.0745	-0.0842	-0.1218	-0.0594	0.0180	0.0451	-0.0018	0.0283	0.0326	0.0037
PRCFES25	-0.0352	0.0017	-0.0136	0.0683	-0.0487	0.0074	-0.0753	-0.0657	-0.0437	-0.0354

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	FORMAL12	FORMAL13	FORMAL14	FORMAL15	MANAUTO	RESPOGEN	COOPOCON	DOCDEP	MODSEFF	SKEPOIST
JCL10	0.1854**	0.1027	-0.0397	0.0676	0.2236**	-0.0215	-0.0720	0.0193	-0.1168	-0.2051**
JCL11	0.0519	0.0374	-0.0568	0.0571	0.2466**	-0.0414	-0.0676	0.0376	-0.0773	-0.1406*
JCL12	0.1368	0.0819	-0.0618	0.1206	0.1688*	-0.0480	-0.0450	-0.0395	-0.1398*	-0.2133**
JCL13	0.0819	0.0744	-0.0926	0.0824	0.1338	-0.0117	0.0358	0.0350	-0.0738	-0.1604*
JCL14	0.0555	-0.0192	-0.1594*	0.0484	0.2094**	0.0003	-0.0374	0.0527	-0.1282	-0.0841
JCL15	0.1422*	0.1514*	-0.0685	0.0810	0.2155**	-0.0709	-0.0859	-0.0384	-0.2002**	-0.1374*
JCL16	0.0705	-0.0047	-0.0519	0.0997	0.1591*	-0.0181	-0.0720	0.0318	-0.1057	-0.1306
JCL17	-0.0366	-0.0107	-0.1439*	0.0373	0.1256	-0.0069	-0.0877	-0.0077	-0.1008	-0.2137**
JCL18	0.0221	-0.0043	-0.1153	0.0633	0.0747	0.0156	-0.0182	0.0377	-0.1493*	-0.2527**
JCL19	0.0607	-0.0083	-0.0711	0.0941	0.1698*	0.0173	-0.0440	0.0318	-0.1067	-0.2436**
JCL20	0.0556	0.0179	-0.0716	0.0656	0.1911**	0.0184	-0.0612	0.0249	-0.1146	-0.1807**
JCL21	0.1161	0.0311	-0.0547	0.1283	0.1881**	-0.0220	-0.0397	0.0755	-0.1256	-0.2029**
JCL22	0.1425*	0.2172**	0.0175	0.1195	0.1651*	-0.0728	-0.0368	-0.0468	-0.0467	-0.0644
JCL23	0.1062	0.0422	-0.0714	0.0110	0.1516*	-0.1548	-0.0832	-0.0494	-0.1209	-0.1375*
JCL24	0.1018	-0.0498	-0.2413**	-0.0130	0.1693*	0.0507	-0.0304	0.0192	-0.1026	-0.1938**
JCL25	0.1314	0.0694	-0.1031	0.1169	0.2751**	0.0174	-0.0246	0.0849	-0.0825	-0.1209
MACH1	0.0629	0.1093	0.0262	0.0541	-0.0299	-0.1054	-0.0514	-0.0104	-0.0271	0.0141
MACH2	-0.0162	-0.0397	0.1032	0.0286	-0.0361	0.0380	-0.0200	0.0120	0.0110	-0.1097
MACH3	0.0786	0.1625*	-0.0219	0.0476	0.0181	0.0184	-0.0674	-0.0752	-0.1333	-0.1359*
MACH4	0.0070	-0.0300	-0.0289	0.0356	0.1481*	0.0246	-0.0513	-0.0422	-0.0502	0.0125
MACH5	0.1923**	0.1377*	0.0744	0.0284	0.0021	-0.0123	0.0115	-0.0276	-0.0329	-0.0658
MACH6	0.0254	0.0362	0.0132	-0.0375	-0.0242	-0.0904	0.0564	0.0168	-0.0155	0.0591
MACH7	0.0432	0.1409*	0.0083	0.0877	0.0133	0.0154	-0.0429	-0.0321	-0.0961	-0.1123
MACH8	0.0129	-0.0675	-0.0047	0.0003	-0.0239	-0.1477*	-0.1516*	-0.1376*	-0.0791	0.0071
MACH9	0.0780	0.2171**	0.0795	0.0358	-0.0915	-0.0787	-0.0301	-0.0304	0.0213	0.0129
MACH10	0.0777	0.0344	0.0189	0.0613	0.0085	-0.0584	-0.0278	-0.1231	-0.1368*	-0.0313
MACH11	-0.0420	0.0072	-0.0725	0.0242	-0.0542	-0.0219	0.0064	-0.0575	0.0129	0.0916
MACH12	-0.0147	-0.0103	0.1056	0.0350	0.0221	-0.0409	-0.0601	-0.0335	-0.0946	0.0459
MACH13	-0.0482	0.0207	-0.0258	0.0424	-0.0815	-0.1523*	-0.1745**	-0.0971	-0.0952	-0.1078
MACH14	0.0540	-0.0221	-0.0139	0.0522	0.1939	-0.0553	-0.0760	-0.0011	-0.0743	0.0261
MACH15	0.0566	0.2121**	0.0124	0.0497	0.0310	-0.1211	-0.0573	-0.0981	-0.1012	0.0198
MACH16	0.0052	0.0294	-0.0035	0.1089	-0.0437	-0.1214	-0.0743	-0.0112	-0.0188	0.0085
MACH17	-0.0347	0.1469*	0.0850	-0.0258	-0.1002	0.0050	0.0235	-0.0222	0.0191	-0.0145
MACH18	0.0431	-0.0317	-0.0683	-0.0163	0.0312	-0.0478	-0.0793	-0.0339	-0.0940	0.0462
MACH19	0.0559	0.0671	-0.0158	0.0563	0.0921	-0.0091	-0.1176	0.0074	-0.0303	0.0872
MACH20	-0.0149	-0.0072	0.0129	-0.0043	-0.0635	-0.0016	-0.0185	-0.0814	-0.0414	0.0826
MACH21	0.0829	0.0543	0.0314	0.0127	0.0586	0.0181	0.0393	-0.0090	0.0175	0.1017
MACH22	0.0258	0.0012	-0.0492	0.0077	0.0461	-0.0518	-0.0773	-0.0307	-0.0978	-0.0035
MACH23	0.0008	-0.0193	-0.0061	-0.0404	0.0251	-0.0538	-0.0942	-0.0531	-0.0134	-0.0196
MACH24	0.1227	0.0394	-0.0344	0.0681	0.0814	0.0344	0.0303	-0.0868	-0.1085	-0.0927
PRCFES1	0.0322	-0.0511	-0.0749	0.0009	0.0094	0.0413	-0.0750	-0.0010	-0.0733	-0.0453

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	ELTAGG	COPPEX	JCL1	JCL2	JCL3	JCL4	JCL5	JCL6	JCL7	JCL8
HALTH1	0.0458	0.0147	-0.3274**	-0.1319	-0.2546**	-0.1412*	-0.3196**	-0.0655	-0.1065	-0.1523*
HALTH2	-0.0085	0.0039	-0.3534**	-0.1929**	-0.3689**	-0.0824	-0.2867**	-0.0178	-0.2030**	-0.1989**
HALTH3	-0.0048	-0.0213	-0.3415**	-0.1576*	-0.3053**	0.0046	-0.2662**	-0.0467	-0.1453*	-0.1910**
HALTH4	-0.1143	-0.1209	-0.4372**	-0.1397*	-0.3707**	-0.1141	-0.2831**	-0.0519	-0.1658*	-0.1871**
HALTH5	-0.0073	-0.0409	-0.3571**	-0.1277	-0.2968**	-0.1496*	-0.3436**	-0.0579	-0.1579*	-0.1460*
AFARTIC1	0.0736	-0.0088	0.3556**	0.0619	0.3746**	0.1412*	0.3204**	0.0155	0.2801**	0.0614
AFARTIC2	0.0449	0.0086	0.3365**	0.0735	0.3624**	0.1645*	0.2970**	0.0209	0.2752**	0.1036
AFARTIC3	0.1072	0.0773	0.3221**	0.1741**	0.4136**	0.1307	0.3363**	0.0136	0.2985**	0.1152
AFARTIC4	0.1213	0.0720	0.3372**	0.1240	0.3524**	0.1175	0.3110**	0.0174	0.2692**	0.0555
FCEPAL1	-0.1308	-0.2115**	-0.5833**	-0.2165**	-0.4696**	-0.2786**	-0.3578**	-0.1353	-0.1798**	-0.1333
FCEPAL2	-0.0558	-0.0447	-0.4397**	-0.1237	-0.2584**	-0.1887**	-0.2042**	-0.0994	-0.1054	-0.0832
FCEPAL3	0.0071	-0.0389	-0.1211	0.0510	0.0091	-0.1498*	-0.0672	0.0519	-0.0349	0.0616
FCEPAL4	-0.0014	0.0057	-0.1342*	0.0401	0.0713	-0.1192	-0.0554	0.0328	0.0440	0.0751
FCEPAL5	0.0246	0.0249	-0.0916	0.0139	0.0504	-0.1463*	-0.0451	0.0223	-0.0168	0.0571
FCEPAL6	-0.0272	-0.0594	-0.1077	0.1006	-0.0036	-0.1185	-0.0295	0.0582	0.0355	0.0847
FCEPAL7	-0.0925	-0.0603	0.0985	0.0512	0.1045	0.0157	0.1163	-0.0331	0.0284	0.0855
FCEPAL8	-0.0288	-0.0459	-0.0313	0.0046	-0.0645	0.0147	0.0264	-0.1347*	-0.0713	-0.0733
FCEPAL9	-0.1000	-0.0693	0.1134	-0.0263	-0.0787	0.0529	0.1519*	-0.0792	-0.0180	0.0179
FCEPAL10	-0.1252	-0.0617	0.3736**	0.1342*	0.3500**	0.1949**	0.2750**	0.0780	0.0632	0.1820**
FCEPAL11	-0.0851	-0.0342	-0.0542	-0.0169	-0.0150	-0.0227	0.0059	-0.0314	-0.0626	-0.0160
FCEPAL12	-0.0623	-0.0173	0.2448**	0.0971	0.1720**	0.1426*	0.1147	-0.0104	-0.0468	0.0542
FCEPAL13	-0.1040	-0.0441	0.1552*	0.0286	0.1619*	0.0448	0.1205	0.0269	-0.0799	-0.0312
FCEPAL14	-0.1081	-0.1624*	-0.0668	-0.0147	-0.0442	-0.0815	0.0154	-0.1394*	-0.1817**	-0.1353*
FCEPAL15	-0.0464	-0.0495	0.1677*	0.0520	0.1325	0.0481	0.1956**	0.0510	-0.0167	0.1041
PPAUTO	0.6559**	0.6446**	0.1877**	0.1468*	0.2586**	0.1442*	0.1006	0.0414	0.1230	0.0632
RESFCGEN	0.3345**	0.3715**	0.0337	0.0718	0.0028	-0.0464	-0.0262	-0.0276	0.0027	0.0206
CCCFCCON	0.2849**	0.3485**	-0.0344	0.0807	0.0155	0.0129	-0.0979	0.0777	-0.0707	0.0614
CCCCEP	0.2889**	0.2939**	-0.0474	0.0849	0.0335	0.0026	-0.0615	0.0644	0.0238	0.1094
PCCSEFF	0.2174**	0.2181**	-0.1320	-0.0084	-0.0679	-0.0879	-0.1375*	-0.0104	-0.0799	-0.0171
SNEPOIST	0.3149**	0.4734**	-0.1365*	-0.0634	-0.1753**	-0.0012	-0.0946	-0.0794	-0.0751	-0.2095**
ELTAGG	1.0000	0.6434**	0.0972	0.0757	0.0617	0.1174	0.0630	-0.0462	0.0438	-0.0085
COPPEX	0.6434**	1.0000	0.0999	0.1355*	0.1159	0.1528*	0.0516	0.0606	0.0256	-0.0462
JCL1	0.0972	0.0999	1.0000	0.1916**	0.5306**	0.3194**	0.4064**	0.1817**	0.2025**	0.1969**
JCL2	0.0757	0.1355*	0.1916**	1.0000	0.3220**	0.1339	0.2331**	0.1498*	0.0312	0.0731
JCL3	0.0617	0.1159	0.5306**	0.3220**	1.0000	0.2468**	0.2692**	0.1205	0.3322**	0.3105**
JCL4	0.1174	0.1528*	0.3194**	0.1339	0.2468**	1.0000	0.2460**	0.1648*	0.0134	0.0010
JCL5	0.0630	0.0516	0.4064**	0.2331**	0.2692**	0.2460**	1.0000	0.1467*	0.1828**	0.1197
JCL6	-0.0462	0.0606	0.1817**	0.1498*	0.1205	0.1648*	0.1467*	1.0000	0.0572	0.0582
JCL7	0.0438	0.0256	0.2025**	0.0312	0.3322**	0.0134	0.1828**	0.0572	1.0000	0.3354**
JCL8	-0.0085	-0.0462	0.1969**	0.0731	0.3105**	0.0010	0.1197	0.0582	0.3354**	1.0000
JCL9	0.0850	0.0162	0.3588**	0.2927**	0.3779**	0.0886	0.3651**	0.0599	0.1628*	0.2592**

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	ELTAGG	COPPEX	JCL1	JCL2	JCL3	JCL4	JCL5	JCL6	JCL7	JCL8
JCL10	0.1022	0.0861	0.4403**	0.2535**	0.5422**	0.2175**	0.3007**	0.1569*	0.3504**	0.2258**
JCL11	0.0916	0.1020	0.2057**	0.2405**	0.4820**	0.0793	0.1880**	-0.0127	0.3134**	0.2418**
JCL12	0.0478	0.0217	0.3676**	0.2235**	0.4955**	0.1726**	0.3374**	0.0551	0.3916**	0.2789**
JCL13	0.0159	0.0629	0.2149**	0.2108**	0.3370**	0.1772**	0.2013**	0.1614*	0.0874	0.0962
JCL14	0.0932	0.1228	0.2415**	0.1402*	0.2980**	0.1085	0.1450*	0.1236	0.1379*	0.2347**
JCL15	0.0787	0.1047	0.3565**	0.2309**	0.4920**	0.2265**	0.3675**	0.1245	0.2299**	0.1566*
JCL16	0.0427	0.0266	0.2129**	0.1897**	0.4026**	0.0907	0.2583**	0.0938	0.2714**	0.2450**
JCL17	0.0259	-0.0045	0.1331	0.1419*	0.2791**	-0.0638	0.1516*	0.1297	0.1968**	0.1233
JCL18	-0.0929	-0.0827	0.1699*	0.1215	0.2288**	-0.0147	0.1578*	0.1286	0.2269**	0.3182**
JCL19	-0.0417	-0.0243	0.2596**	0.2358**	0.4274**	0.1356*	0.2001**	0.1851**	0.2544**	0.3168**
JCL20	0.0515	0.0712	0.3173**	0.2229**	0.4738**	0.3727	0.2458**	0.0251	0.3655**	0.3529**
JCL21	0.0057	0.0761	0.3259**	0.2518**	0.5903**	0.1778**	0.2844**	0.1425*	0.3653**	0.3131**
JCL22	0.1596*	0.0946	0.3463**	0.1491*	0.3871**	0.1718**	0.2991**	0.0389	0.1951**	0.1055
JCL23	0.0360	0.0029	0.2433**	0.1907**	0.3744**	0.1812**	0.2113**	0.0644	0.3128**	0.1826**
JCL24	-0.0169	0.0632	0.3054**	0.1629*	0.4269**	0.0873	0.1741**	0.1013	0.3559**	0.4019**
JCL25	0.0986	0.1238	0.3123**	0.2130**	0.5260**	0.1953**	0.2691**	0.1051	0.5011**	0.3735**
PACH1	-0.0270	0.0114	-0.0313	0.0371	0.0248	-0.0547	0.0377	-0.0783	-0.0749	0.0263
PACH2	-0.0782	-0.0391	0.0686	-0.0551	0.0346	0.0311	0.0589	-0.0166	-0.0289	-0.0259
PACH3	-0.0152	0.0013	0.1788**	-0.0294	0.1115	0.0223	0.1333	0.0371	0.0820	0.0160
PACH4	0.0515	0.1526*	0.0577	-0.0020	0.0754	0.0209	0.0178	-0.0391	0.0191	-0.0058
PACH5	0.0118	-0.0771	0.0568	0.0023	0.0406	0.0692	0.0800	-0.0705	-0.0292	-0.0274
PACH6	-0.0276	0.0115	-0.1251	-0.0191	-0.0791	0.0114	-0.0582	0.0667	-0.1676*	-0.0403
PACH7	0.0134	0.0203	0.1626*	0.0112	0.1526*	0.0874	0.1222	0.0289	0.0422	0.1251
PACH8	0.0208	0.0406	0.0574	-0.0420	0.0896	0.0062	0.0992	-0.0335	-0.0126	0.0381
PACH9	-0.0613	-0.0525	-0.0495	0.0421	0.0110	-0.0355	0.0325	-0.0328	-0.0120	0.0306
PACH10	-0.0174	0.0332	-0.0170	0.1264	0.0850	0.0215	0.0649	0.0215	0.0053	0.0129
PACH11	0.0084	0.0424	0.0585	0.1042	-0.0253	0.0607	-0.0367	0.0084	-0.0003	0.0957
PACH12	-0.0136	0.0335	-0.1086	-0.0213	-0.0969	-0.1162	0.0056	-0.0309	-0.0253	-0.0128
PACH13	-0.0941	-0.1256	0.0653	-0.0776	0.0268	-0.0471	0.0648	0.0033	0.0452	-0.0765
PACH14	0.1189	0.1033	0.1230	0.0981	0.0929	0.0242	0.1569*	0.0573	0.0722	0.0609
PACH15	0.0143	0.0223	-0.0465	-0.0216	-0.0597	-0.0095	0.0376	-0.0242	-0.0221	-0.0122
PACH16	-0.0156	0.0171	0.0134	-0.0472	0.0407	-0.0273	0.0461	0.0617	-0.0779	0.0729
PACH17	-0.0954	-0.0503	-0.0808	0.0417	-0.0316	-0.0737	-0.0262	0.0419	0.0035	0.0156
PACH18	0.0244	0.0275	0.0081	-0.0146	0.0523	-0.0012	-0.0087	0.0189	0.0979	0.0237
PACH19	0.0197	0.0611	0.0447	-0.0105	0.0373	0.0744	0.0585	0.0949	0.1388*	-0.0671
PACH20	-0.0051	0.0379	-0.1255	0.0103	-0.1216	-0.0313	0.1032	0.0147	-0.0245	-0.0450
PACH21	0.1618*	0.1096	0.1032	0.0679	0.0706	0.1621*	0.0709	0.0099	0.0599	0.0068
PACH22	0.0722	0.0981	-0.0248	0.0631	-0.0200	-0.0372	0.0620	0.0207	0.0778	0.0264
PACH23	-0.0479	-0.0148	0.0087	0.0550	-0.0175	0.0349	0.0073	0.0166	-0.0099	-0.1001
PACH24	0.0039	0.0115	0.1171	0.0447	0.1174	0.0330	0.0433	-0.0025	-0.0070	0.0982
PPCFES1	0.0372	0.0853	0.0527	0.1429*	0.0847	0.0599	0.1362*	0.0539	0.0927	-0.0491

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FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - -

	BLTAGG	COPPEX	JCL1	JCL2	JCL3	JCL4	JCL5	JCL6	JCL7	JCL8
PRCFES2	0.0362	0.0153	0.1510*	0.0106	0.1962**	0.0897	0.0919	0.0493	0.1184	0.0842
PRCFES3	0.2185**	0.2387**	0.4761**	0.1771**	0.2767**	0.2586**	0.3524**	0.0644	0.1342*	0.0522
PRCFES4	-0.0024	-0.0112	0.0442	0.0703	0.0458	-0.0248	-0.0193	0.0662	0.0848	-0.0723
PRCFES5	-0.0116	0.0019	0.0738	0.0832	0.0785	0.1284	-0.0515	0.0407	0.0932	0.0488
PRCFES6	0.1057	0.1015	0.2476**	0.1748**	0.1642*	0.1770**	0.2012**	0.0299	0.1298	0.0839
PRCFES7	0.0091	-0.0238	0.0992	0.0659	0.1287	0.0751	0.2355**	-0.0554	0.0331	0.1151
PRCFES8	0.1766**	0.2232**	0.5234**	0.2383**	0.4106**	0.2795**	0.4073**	0.1324	0.1584*	0.0627
PRCFES9	0.0223	0.0146	0.0972	-0.0747	0.1058	0.0011	0.0022	-0.0325	0.0507	0.0696
PRCFES10	0.1349*	0.1347*	0.0724	0.0737	0.1439*	0.0556	0.1343*	0.1026	0.1154	0.1599*
PRCFES11	0.0028	-0.0340	0.1597*	0.0586	0.1609*	0.0604	0.0706	0.0603	0.0965	0.1447*
PRCFES12	0.0665	0.0521	0.2868**	0.2583**	0.2124**	-0.1498*	0.2533**	0.0438	0.0659	0.3570
PRCFES13	0.0379	0.0710	0.1214	0.0124	0.1035	0.0536	0.0543	0.1185	0.1247	0.0596
PRCFES14	0.0686	0.0874	-0.0531	0.1318	0.0745	0.0474	0.0526	0.0717	0.0004	0.0684
PRCFES15	0.0767	0.0248	0.1672*	0.0693	0.1659*	0.0633	0.0493	0.1269	0.1046	0.0437
PRCFES16	-0.0987	-0.0525	0.1057	0.1331	0.1340*	-0.0378	0.0748	0.0523	0.0025	-0.0053
PRCFES17	-0.0149	-0.0747	0.1776**	0.0946	0.1529*	0.0566	0.0610	0.1629*	0.0975	0.0965
PRCFES18	0.1076	0.1226	0.3992**	0.1950**	0.3964**	0.1943**	0.2544**	0.0563	0.1443*	0.0948
PRCFES19	0.0358	0.0162	0.0645	0.1146	0.1122	0.0657	0.0462	0.0620	-0.0449	0.0522
PRCFES20	-0.0662	-0.0119	0.0563	0.1043	0.0664	0.0286	-0.0608	0.0031	-0.0431	-0.0854
PRCFES21	0.0566	0.0545	0.1491	0.0598	0.0433	0.0845	0.0449	0.0977	0.0562	-0.0419
PRCFES22	-0.0662	-0.0152	0.1358*	0.0658	0.1579*	0.0483	0.0388	0.1455*	0.1022	0.1115
PRCFES23	-0.1485*	-0.0801	0.0792	0.1919**	0.1713**	0.0435	0.0684	0.0993	0.1126	0.0113
PRCFES24	0.0061	0.0243	-0.0241	0.1258	0.0447	0.0169	0.0512	-0.0362	0.0107	0.0228
PRCFES25	-0.0366	0.0286	0.0105	0.0891	0.0283	0.0297	0.1452*	0.0729	0.0621	-0.0696

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FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - -

	JCL9	JCL10	JCL11	JCL12	JCL13	JCL14	JCL15	JCL16	JCL17	JCL18
PALTH1	-0.3017**	-0.2285**	-0.0801	-0.2026**	-0.1448*	-0.1094	-0.2026**	-0.1392*	0.0488	-0.0153
PALTH2	-0.3286**	-0.2993**	-0.2227**	-0.2599**	-0.2597**	-0.1516*	-0.1942**	-0.2303**	-0.1234	-0.0571
PALTH3	-0.2784**	-0.2282**	-0.2476**	-0.1930**	-0.2012**	-0.1469*	-0.1552*	-0.2173**	-0.0851	-0.0524
PALTH4	-0.4010**	-0.3377**	-0.2537**	-0.2769**	-0.2309**	-0.2066**	-0.1884**	-0.2247**	-0.0420	-0.0861
PALTH5	-0.3466**	-0.3344**	-0.2141**	-0.2746**	-0.2299**	-0.1476*	-0.2423**	-0.1906**	-0.0430	-0.0741
APARTIC1	0.3016**	0.3114**	0.3547**	0.3858**	0.1488*	0.2476**	0.4300**	0.3691**	0.2413**	0.2733**
APARTIC2	0.3353**	0.2321**	0.3433**	0.3624**	0.1494*	0.2419**	0.4076**	0.3532**	0.2108**	0.2979**
APARTIC3	0.3351**	0.3077**	0.3324**	0.4367**	0.2138**	0.2963**	0.4603**	0.3085**	0.2402**	0.2447**
APARTIC4	0.2856**	0.2873**	0.2450**	0.3928**	0.1490*	0.2620**	0.4494**	0.2193**	0.2312**	0.2267**
FCPPAL1	-0.4081**	-0.4033**	-0.2785**	-0.3825**	-0.2599**	-0.2476**	-0.3902**	-0.2356**	-0.1155	-0.1147
FCPPAL2	-0.2653**	-0.2617**	-0.0869	-0.1978**	-0.1727**	-0.1124	-0.2038**	-0.0855	-0.0399	-0.0341
FCPPAL3	-0.0387	-0.0401	0.1163	-0.0406	-0.0921	0.0098	-0.0187	0.1245	0.1147	0.1057
FCPPAL4	-0.0055	0.0477	0.1275	0.0251	-0.1321	0.0744	0.0558	0.1543*	0.1015	0.1853**
FCPPAL5	-0.0356	0.0474	0.0555	-0.0033	-0.0478	0.0811	0.0224	0.1013	0.0408	0.1228
FCPPAL6	0.0039	0.0439	0.1122	0.0352	0.0539	0.0650	-0.0242	0.1492*	0.1876**	0.0376
FCPPAL7	0.0656	0.0271	0.0609	0.0738	-0.0444	-0.0398	0.0335	0.1283	-0.1072	0.0501
FCPPAL8	0.0360	-0.0501	-0.0363	-0.0448	-0.1152	-0.0871	-0.0074	-0.0609	-0.1436*	-0.1091
FCPPAL9	0.0832	0.0517	0.0363	0.0477	0.0859	-0.0444	0.1298	0.0474	-0.0825	-0.0312
FCPPAL10	0.2340**	0.2851**	0.1482*	0.2422**	0.1779**	0.1241	0.2533**	0.1523*	0.0731	0.0926
FCPPAL11	-0.0868	-0.0543	0.0224	-0.0334	-0.0931	-0.0379	0.0107	-0.0499	-0.1014	-0.0161
FCPPAL12	0.1183	0.1854**	0.0539	0.1338	0.0919	0.0555	0.1422*	0.0705	-0.0366	0.0221
FCPPAL13	0.0276	0.1027	0.0374	0.0819	0.0744	-0.0192	0.1514*	-0.0047	-0.0107	-0.0043
FCPPAL14	-0.0442	-0.0387	-0.0568	-0.0618	-0.0926	-0.1594*	-0.0685	-0.0530	-0.1439*	-0.1153
FCPPAL15	0.0707	0.0876	0.0571	0.1296	0.0424	0.0484	0.0610	0.0987	0.0373	0.0633
PPALTO	0.1550*	0.2236**	0.2466**	0.1696*	0.1338	0.2094**	0.2055**	0.1591*	0.1256	0.0747
RESPOGEN	-0.0317	-0.0215	-0.0414	-0.0480	-0.0117	0.1003	-0.0709	-0.0183	-0.0099	0.0156
CCCPOCON	-0.0326	-0.0720	-0.0676	-0.0450	0.0358	-0.0374	-0.0859	-0.0723	-0.0877	-0.0182
CCCCEP	-0.0776	0.0136	0.0374	-0.0395	0.0050	0.0527	-0.0384	0.0318	-0.0077	0.0377
PCCSEFF	-0.1570*	-0.1168	-0.0773	-0.1398*	-0.0738	-0.1282	-0.2002**	-0.1057	-0.1008	-0.1493*
SPEPOIST	-0.0735	-0.2051**	-0.1406*	-0.2133**	-0.1604*	-0.0841	-0.1374*	-0.1336	-0.2137**	-0.2527**
BLTAGG	0.0950	0.1022	0.0815	0.0478	0.0199	0.0832	0.0767	0.0427	0.0255	-0.0929
COPPEX	0.0162	0.0861	0.1020	0.0217	0.0620	0.1228	0.1047	0.0266	-0.0045	-0.0627
JCL1	0.3588**	0.4403**	0.2057**	0.3676**	0.2149**	0.2415**	0.3565**	0.2129**	0.1330	0.1699*
JCL2	0.2927**	0.2535**	0.2405**	0.2205**	0.2108**	0.1402*	0.2309**	0.1897**	0.1419*	0.1215
JCL3	0.3779**	0.5422**	0.4820**	0.4955**	0.3370**	0.2886**	0.4920**	0.4026**	0.2791**	0.2288**
JCL4	0.0886	0.2175**	0.0793	0.1720**	0.1772**	0.1085	0.2265**	0.0907	0.0638	-0.0147
JCL5	0.3651**	0.3897**	0.1883**	0.3374**	0.2013**	0.1450*	0.3675**	0.2683**	0.1516*	0.1578*
JCL6	0.0569	0.1569*	-0.0127	0.0551	0.1614*	0.1216	0.1245	0.0038	0.1297	0.1286
JCL7	0.1628*	0.3504**	0.3134**	0.3916**	0.0874	0.1379*	0.2299**	0.2714**	0.1908**	0.2269**
JCL8	0.2552**	0.2250**	0.2419**	0.2789**	0.0962	0.2347**	0.1566*	0.2450**	0.1233	0.3182**
JCL9	1.0000	0.3815**	0.2628**	0.4134**	0.1310	0.2602**	0.3379**	0.2644**	0.1266	0.1668*

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FILE BSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	JCL9	JCL10	JCL11	JCL12	JCL13	JCL14	JCL15	JCL16	JCL17	JCL18
JCL10	0.3815**	1.0000	0.3939**	0.6307**	0.3944**	0.3583**	0.5067**	0.3473**	0.2139**	0.2345**
JCL11	0.2628**	0.3900**	1.0000	0.5130**	0.2781**	0.3646**	0.4236**	0.5532**	0.2119**	0.2154**
JCL12	0.4134**	0.6307**	0.5139**	1.0000	0.2769**	0.3793**	0.4808**	0.4230**	0.1996**	0.3307**
JCL13	0.1310	0.3944**	0.2781**	0.2769**	1.0000	0.2922**	0.3021**	0.2405**	0.1857**	0.1178
JCL14	0.2602**	0.3583**	0.3646**	0.3793**	0.2922**	1.0000	0.4001**	0.2834**	0.1193	0.2444**
JCL15	0.3379**	0.5067**	0.4236**	0.4808**	0.3021**	0.4001**	1.0000	0.4402**	0.2296**	0.2892**
JCL16	0.2644**	0.3470**	0.5532**	0.4230**	0.2405**	0.2834**	0.4402**	1.0000	0.2405**	0.2729**
JCL17	0.1266	0.2139**	0.2119**	0.1996**	0.1857**	0.1193	0.2296**	0.2405**	1.0000	0.3019**
JCL18	0.1608*	0.2345**	0.2154**	0.3307**	0.1178	0.2444**	0.2892**	0.2726**	0.3019**	1.0000
JCL19	0.1863**	0.3442**	0.3532**	0.3213**	0.2234**	0.2726**	0.2676**	0.2735**	0.3331**	0.3675**
JCL20	0.2965**	0.4043**	0.4833**	0.4795**	0.2420**	0.3077**	0.4103**	0.5059**	0.2821**	0.3471**
JCL21	0.2669**	0.4974**	0.5701**	0.5415**	0.3256**	0.3242**	0.5357**	0.5599**	0.3140**	0.3846**
JCL22	0.2774**	0.2811**	0.2913**	0.3487**	0.2358**	0.1451*	0.3169**	0.2219**	0.1514*	0.3891
JCL23	0.2955**	0.4653**	0.3311**	0.5260**	0.2658**	0.1913**	0.3726**	0.3716**	0.3172**	0.2496**
JCL24	0.2538**	0.3996**	0.3559**	0.3681**	0.2800**	0.3677**	0.3386**	0.3675**	0.2779**	0.3623**
JCL25	0.2803**	0.4783**	0.4651**	0.5887**	0.3903**	0.3528**	0.4435**	0.4572**	0.3329**	0.4023**
BACK1	0.1157	0.0967	0.0957	0.1044	0.0778	0.0910	0.1095	0.1152	-0.0421	-0.0159
BACK2	-0.0442	0.0792	-0.0047	0.1084	0.0152	0.0456	0.1056	-0.0071	0.0552	0.1331
BACK3	0.0654	0.1584*	0.1048	0.1683*	0.1020	0.0813	0.1554*	0.1442*	0.0573	0.0864
BACK4	0.0510	0.0629	0.0550	0.1116	0.0788	0.1113	0.0398	-0.0280	0.0576	0.0184
BACK5	-0.0144	0.1166	0.0137	0.1577*	0.1057	-0.0003	0.1023	0.0338	0.0509	0.0249
BACK6	-0.0023	-0.0983	-0.0998	-0.0643	-0.0617	-0.0826	-0.0828	-0.1135	-0.0871	-0.1082
BACK7	0.0631	0.1936**	0.1615*	0.2385**	0.0747	0.1235	0.1892**	0.1480*	0.0416	0.0907
BACK8	0.1528*	0.0558	0.0413	0.0531	0.0213	-0.0236	0.0721	0.0486	-0.0402	-0.0570
BACK9	0.0354	-0.0156	0.0338	0.0262	0.0563	-0.0198	0.0650	0.0311	-0.0303	0.0391
BACK10	0.1780**	0.1189	0.0709	0.2316**	0.0153	0.0939	0.0884	0.0673	0.0148	0.0395
BACK11	0.0093	-0.0736	-0.0825	-0.0892	0.0106	-0.0570	-0.0335	-0.0301	-0.0919	-0.0386
BACK12	0.0873	-0.0614	0.0733	0.0705	-0.0238	0.0690	-0.0333	-0.0138	0.0787	-0.0097
BACK13	-0.0130	0.0148	0.0010	0.0426	0.0179	-0.0253	0.0586	0.0107	0.0724	0.0193
BACK14	0.0751	0.1038	0.1475*	0.1556*	0.0734	0.0530	0.2033**	0.1942**	0.0375	0.1220
BACK15	0.0753	-0.0257	0.0143	0.0308	0.0714	0.0241	0.0094	0.0203	-0.0710	-0.0719
BACK16	0.0339	0.0206	0.0326	-0.0518	0.0289	0.0638	0.0321	-0.0419	-0.0219	-0.0437
BACK17	0.0442	-0.0225	-0.0815	0.0043	0.0311	-0.0335	-0.0366	-0.0770	-0.0314	-0.0172
BACK18	0.0716	0.1243	0.0489	-0.0063	0.0240	0.0612	0.0445	0.0857	-0.0420	0.0162
BACK19	0.0548	0.0581	-0.0119	0.0277	0.0126	0.0221	0.0981	0.0342	-0.0456	-0.0238
BACK20	-0.0160	-0.0557	-0.1029	-0.0852	0.0040	-0.1009	-0.0886	-0.1195	-0.0182	-0.0507
BACK21	0.0232	0.0660	0.0250	0.0329	0.0153	-0.0296	0.1220	0.1514	0.0183	0.0135
BACK22	0.0376	0.0085	0.0648	-0.0037	0.0092	0.0424	0.0840	0.1029	0.0011	-0.0845
BACK23	-0.0167	-0.0898	-0.0255	-0.0709	0.0328	-0.0219	-0.0827	-0.0850	0.1321	-0.0378
BACK24	0.0814	0.0723	0.0896	0.1533*	0.0702	0.0436	0.1744**	0.1389*	0.0501	0.0909
PRCFES1	0.0646	0.1731**	0.0069	0.1113	0.0505	0.0528	0.1335	0.0438	0.1864**	0.0863

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FILE BSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	JCL9	JCL10	JCL11	JCL12	JCL13	JCL14	JCL15	JCL16	JCL17	JCL18
PRCFES2	0.0643	0.1759**	0.1242	0.1371*	0.1547*	0.0591	0.0713	0.0908	0.1624*	0.0976
PRCFES3	0.2892**	0.3082**	0.1915**	0.3242**	0.2051**	0.1845**	0.3782**	0.1976**	0.0355	0.0524
PRCFES4	0.0348	0.0676	0.0537	0.1431*	0.0866	-0.0094	0.0957	-0.0494	0.2220**	0.0692
PRCFES5	0.0650	0.1450*	0.1155	0.1908**	0.0359	0.0522	0.1108	0.0822	0.0695	0.1419*
PRCFES6	0.1777**	0.2020**	0.1313	0.2729**	0.1541*	0.0955	0.1519*	0.1865**	-0.0211	0.0518
PRCFES7	0.1636*	0.1198	0.2382**	0.1847**	0.1192	0.2077**	0.2615**	0.2427**	0.1811**	0.1970**
PRCFES8	0.3467**	0.4050**	0.1718**	0.3387**	0.2424**	0.2397**	0.4419**	0.2306**	0.0927	0.1785**
PRCFES9	0.0011	0.1054	0.0459	0.0811	0.0737	0.0982	0.0940	0.0344	-0.0797	0.0667
PRCFES10	0.0651	0.0948	0.1378*	0.1381*	0.0841	0.2807**	0.1874**	0.1120	0.1145	0.1638*
PRCFES11	0.1376*	0.1871**	0.0754	0.1979**	0.0912	0.0824	0.1196	0.1223	0.0393	0.1573*
PRCFES12	0.3207**	0.2671**	0.2148**	0.2646**	0.1875**	0.1779**	0.2546**	0.1638*	0.0640	0.1100
PRCFES13	0.0138	0.1273	0.1174	0.1174	0.0880	0.0405	0.1235	0.1115	0.1761**	0.1039
PRCFES14	0.0361	0.0824	0.0852	0.0425	0.0379	0.1591*	0.1280	0.0584	0.1156	0.0553
PRCFES15	0.0523	0.2762**	0.1201	0.1865**	0.1309	0.0261	0.1902**	0.0869	0.1396*	0.1709**
PRCFES16	0.0978	0.1513*	0.0513	0.1200	0.1617*	0.1393*	0.1696*	0.0491	0.0944	0.0307
PRCFES17	0.0774	0.1786**	0.0568	0.2032**	0.0843	0.0968	0.0574	0.0270	0.1424*	0.2426**
PRCFES18	0.2953**	0.3750**	0.2583**	0.3956**	0.1826**	0.2375**	0.3013**	0.2291**	0.1664*	0.1699
PRCFES19	0.1068	0.0313	0.1291	0.1030	0.0768	0.1386*	0.0852	0.1655*	0.1821**	0.1362*
PRCFES20	-0.0135	-0.0030	0.0665	0.1628*	-0.0207	0.0748	0.0602	0.0534	0.0611	0.0146
PRCFES21	0.0547	0.1526*	0.0862	0.1799	0.0297	0.0143	0.0921	0.0212	0.0968	0.0356
PRCFES22	0.0640	0.1044	-0.0159	0.0927	0.1206	0.1451*	0.1042	0.0259	0.1560*	0.2022**
PRCFES23	0.1112	0.1518*	0.1387*	0.2261**	0.1927**	0.1647*	0.1914**	0.1232	0.1215	0.1669**
PRCFES24	0.0455	0.0033	0.0587	0.0926	0.0300	0.1627*	0.0541	0.0673	0.1319	0.0284
PRCFES25	0.0064	0.0933	-0.0621	0.0589	-0.0169	0.0522	0.0913	0.0489	0.1909**	0.0577

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PEARSON CORRELATION COEFFICIENTS

	JCL19	JCL20	JCL21	JCL22	JCL23	JCL24	JCL25	NACH1	NACH2	NACH3
JCL16	0.3442**	0.4043**	0.4976**	0.2811**	0.4653**	0.3906**	0.4783**	0.0967	0.0792	0.1584*
JCL17	0.3512**	0.4633**	0.5761**	0.2913**	0.3311**	0.3536**	0.4631**	0.0957	-0.0047	0.1648
JCL18	0.3213**	0.4295**	0.5415**	0.3087**	0.5260**	0.3641**	0.5867**	0.1046	0.1084	0.1683*
JCL19	0.2234**	0.2420**	0.3256**	0.2388**	0.2658**	0.2870**	0.3003**	0.0778	0.0152	0.1020
JCL20	0.2728**	0.3677**	0.3242**	0.1451*	0.1913**	0.3677**	0.3024**	0.0913	0.0450	0.0813
JCL21	0.2676**	0.4103**	0.5357**	0.3169**	0.3726**	0.3386**	0.4835**	0.1095	0.1056	0.1554*
JCL22	0.2735**	0.3653**	0.5599**	0.2219**	0.3716**	0.3675**	0.4572**	0.1152	-0.0071	0.1442*
JCL23	0.3331**	0.2821**	0.3142**	0.1514*	0.3172**	0.2779**	0.3329**	-0.0421	0.0552	0.0573
JCL24	0.3075**	0.3471**	0.3846**	0.2891	0.2496**	0.3623**	0.4023**	-0.0159	0.1331	0.0864
JCL25	0.4032**	0.4432**	0.4063**	0.2444**	0.2294**	0.4062**	0.4290**	0.0245	0.0774	0.1705*
NACH1	0.0245	0.0532	0.1064	-0.1553	0.0303	0.0327	0.0388	1.0000	-0.0059	0.1257
NACH2	0.0778	0.0780	0.0205	-0.0094	0.1621*	0.0166	0.0331	-0.0059	1.0000	-0.0146
NACH3	0.1765*	0.0838	0.1812**	0.1132	0.0964	0.0525	0.1345*	0.1257	-0.0146	1.0000
NACH4	-0.0079	0.0782	0.0594	0.1079	0.1320	0.0770	0.0303	0.1163	0.2198**	0.1078
NACH5	0.1037	0.0993	0.0431	0.0855	0.1379*	0.0564	0.1418*	0.0742	0.2177**	0.2366**
NACH6	-0.1426*	-0.1113	-0.0669	-0.0257	0.0114	-0.0746	-0.1029	0.0341	0.0898	-0.0272
NACH7	0.1503*	0.1430*	0.2573**	0.1214	0.1374*	0.0885	0.1770**	0.1266	0.0932	0.5007**
NACH8	-0.0230	-0.0375	0.0140	0.1391*	0.0427	0.0098	0.0212	0.0936	-0.0164	0.0583
NACH9	0.1225	0.0191	0.0343	-0.0310	0.0762	-0.0301	-0.0026	0.1508*	0.0556	0.0557
NACH10	0.1113	0.0661	0.0848	0.0567	0.1509*	0.0317	0.0958	0.0406	0.1542*	0.0731
NACH11	0.0130	-0.0635	-0.0846	-0.0140	-0.0984	-0.0451	-0.0161	0.0008	-0.0779	0.0497
NACH12	-0.0557	0.0282	0.0145	-0.0623	-0.0376	0.0341	0.0191	0.2072**	0.0320	-0.0091
NACH13	-0.0720	-0.0191	0.0221	0.1076	0.0465	0.0341	0.0328	-0.0130	0.0556	0.0796
NACH14	-0.0121	0.0761	0.1685*	0.1456*	0.1170	0.0847	0.1473*	0.0669	0.0090	0.0643
NACH15	-0.0881	-0.0650	-0.0558	0.0598	0.0585	-0.0132	-0.0062	0.1625*	-0.0455	0.1063
NACH16	0.0467	-0.0148	-0.0179	-0.0307	-0.0272	0.0563	-0.0219	0.0584	0.0475	0.0082
NACH17	-0.0759	-0.0246	-0.0465	-0.0579	0.0548	-0.0103	0.0081	0.0689	0.0606	-0.0745
NACH18	0.0321	0.0276	0.0611	0.0547	0.0623	0.0598	-0.0013	0.0158	-0.0196	-0.0489
NACH19	0.0151	-0.0370	0.0964	0.0967	0.0607	0.0271	0.0971	0.1694	-0.1116	0.0215
NACH20	-0.1246	-0.0206	-0.1002	-0.0175	-0.0146	0.0149	-0.0375	0.0200	-0.0144	-0.1041
NACH21	0.0361	0.0630	0.0571	0.1245	0.0694	0.0468	0.0916	-0.0477	-0.0339	-0.0455
NACH22	0.0236	0.0232	0.0453	0.0884	0.0144	0.0520	0.0129	0.0975	-0.0813	0.0304
NACH23	0.0684	0.0360	-0.0805	-0.0070	0.0157	-0.0956	-0.0950	0.0066	0.0621	-0.0019
NACH24	0.1250	0.0780	0.1295	0.0319	0.0503	0.1015	0.1135	0.0794	-0.0133	0.3930**
PRCFES1	0.0982	0.1032	0.0643	0.0426	0.0791	0.0985	0.0302	0.0021	0.1111	0.1028

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

PEARSON CORRELATION COEFFICIENTS

	JCL19	JCL20	JCL21	JCL22	JCL23	JCL24	JCL25	NACH1	NACH2	NACH3
PAUTH1	-0.0955	-0.1213	-0.1099	-0.1801**	-0.1811**	-0.1536*	-0.1332	0.0039	0.0239	-0.0151
PAUTH2	-0.1766**	-0.2228**	-0.2211**	-0.2475**	-0.2514**	-0.2927**	-0.2875**	-0.0555	0.0793	-0.0642
PAUTH3	-0.1067	-0.1507**	-0.1970**	-0.2133**	-0.1993**	-0.2757**	-0.2345**	-0.0460	0.0448	-0.0356
PAUTH4	-0.1757**	-0.2382**	-0.2600**	-0.2464**	-0.1891**	-0.2888**	-0.2678**	-0.0524	-0.0409	-0.0952
PAUTH5	-0.1334	-0.2331**	-0.2761**	-0.2918**	-0.1915**	-0.2370**	-0.2922**	-0.0195	0.0402	-0.0381
APARTIC1	0.3011**	0.3033**	0.4219**	0.2813**	0.2835**	0.2687**	0.3575**	0.0525	0.1436*	0.2639**
APARTIC2	0.2660**	0.3652**	0.4502**	0.2550**	0.2720**	0.2703**	0.3202**	0.1251	0.1448*	0.1947**
APARTIC3	0.2466**	0.3099**	0.4534**	0.2520**	0.2930**	0.2894**	0.3633**	0.1171	0.1335	0.2013**
APARTIC4	0.2049**	0.2686**	0.3831**	0.2568**	0.2909**	0.2428**	0.3323**	0.0719	0.1513*	0.1797**
PCAPAL1	-0.1977**	-0.2337**	-0.3679**	-0.3791**	-0.2742**	-0.3022**	-0.3294**	-0.0788	0.0207	-0.1247
PCAPAL2	-0.1011	-0.1388*	-0.1117	-0.1965**	-0.1193	-0.1795**	-0.1808**	-0.0294	0.0732	-0.0317
PCAPAL3	0.1352*	0.0628	0.1104	-0.0585	-0.0396	0.0317	0.0163	-0.0647	0.0761	-0.0128
PCAPAL4	0.2127**	0.1244	0.1783**	-0.0535	-0.0417	0.1654*	0.1023	-0.0302	-0.0128	0.0017
PCAPAL5	0.1364*	0.1223	0.1130	-0.1045	-0.0953	0.1214	0.0343	-0.0020	0.0695	-0.0478
PCAPAL6	0.1279	0.1641*	0.0193	-0.0916	0.0598	0.1303	0.0659	-0.0146	-0.0101	-0.0171
PCAPAL7	-0.0114	0.0601	0.1418*	0.0707	0.0465	-0.0448	0.0725	0.0238	-0.0538	0.1378*
PCAPAL8	-0.1328	-0.1383*	-0.0538	0.1051	0.0198	-0.2086**	-0.0897	0.1566*	-0.0506	0.0846
PCAPAL9	-0.1430*	-0.0691	0.0606	0.1410*	0.0443	-0.0749	0.0492	0.1976**	-0.0269	0.0369
PCAPAL10	0.1564*	0.2100**	0.2161**	0.2088**	0.2021**	0.1275	0.2150**	0.0884	0.0250	0.0759
PCAPAL11	-0.0752	-0.0932	0.0303	-0.0416	-0.1142	-0.1009	0.0086	0.0461	-0.0569	0.1048
PCAPAL12	0.0667	0.0556	0.1181	0.1425*	0.1082	0.1018	0.1314	0.0629	-0.0182	0.0786
PCAPAL13	-0.0363	0.0179	0.1311	0.2172**	0.0422	-0.0498	0.0694	0.1393	-0.0397	0.1628*
PCAPAL14	-0.0711	-0.0716	-0.0547	0.0175	-0.0714	-0.2413**	-0.1031	0.0262	0.1002	-0.0219
PCAPAL15	0.0941	0.0656	0.1293	0.1195	0.0116	-0.0136	0.1169	0.0541	0.0286	0.0476
PPAUTO	0.1699*	0.1911**	0.1881**	0.1651*	0.1516*	0.1693*	0.2751**	-0.0299	-0.0361	0.0181
RESPOGEN	0.0173	0.0184	-0.0220	-0.0728	-0.0548	0.0507	0.0174	-0.1334	0.0380	0.0134
CCCPCCON	-0.0449	-0.0612	-0.0397	-0.0368	-0.0832	-0.0324	-0.0246	-0.0514	-0.0200	-0.0674
CCCCCEP	0.0318	0.0049	0.0755	-0.0468	-0.0494	0.0192	0.0849	-0.0104	0.0120	-0.0752
PCCSEFF	-0.1067	-0.1146	-0.1256	-0.1467	-0.1209	-0.1026	-0.0825	-0.0271	0.0116	-0.1333
SKEPCIST	-0.2436**	-0.1897**	-0.2929**	-0.3044	-0.1375*	-0.1938**	-0.1209	0.0141	-0.1097*	-0.1359*
ELIAGG	-0.0417	0.0515	0.0097	0.1506*	0.0860	-0.0160	0.0888	-0.0270	-0.0782	-0.0152
CCPPEX	-0.0243	0.0712	0.0761	0.0946	0.0029	0.0632	0.1238	0.0114	-0.0391	0.0013
JCL1	0.2556**	0.3173**	0.3250**	0.3463**	0.2433**	0.3034**	0.3123**	-0.0010	0.0686	0.1788**
JCL2	0.2368**	0.2229**	0.2518**	0.1491*	0.1957**	0.1625*	0.2130**	0.3371	-0.0551	-0.0294
JCL3	0.4274**	0.4738**	0.5931**	0.3871**	0.3746**	0.4269**	0.5260**	0.0248	0.0346	0.1115
JCL4	0.1356*	0.0727	0.1779**	0.1718**	0.1812**	0.0873	0.1953**	-0.0547	0.0311	0.0223
JCL5	0.2001**	0.2458**	0.2464**	0.2991**	0.2113**	0.1741**	0.2691**	0.0577	0.0589	0.1313
JCL6	0.1851**	0.0251	0.1425*	0.0389	0.0644	0.1013	0.1051	-0.0763	-0.0106	0.0371
JCL7	0.2544**	0.3655**	0.3453**	0.1951**	0.3126**	0.3559**	0.5011**	-0.0049	-0.0289	0.0020
JCL8	0.3168**	0.3529**	0.3130**	0.1055	0.1826**	0.4019**	0.3735**	0.0263	-0.0259	0.0160
JCL9	0.1863**	0.2995**	0.2699**	0.2774**	0.2955**	0.2538**	0.2803**	0.1157	-0.0442	0.0654

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	JCL19	JCL20	JCL21	JCL22	JCL23	JCL24	JCL25	NACH1	NACH2	NACH3
PRCFES2	0.1163	0.1416*	0.1122	0.1492*	0.1462*	0.1395*	0.1524*	-0.1781**	0.0392	-0.0021
PRCFES3	0.1731**	0.1938**	0.2832**	0.3765**	0.2179**	0.2241**	0.3395**	-0.3073	0.0168	0.1498*
PRCFES4	0.1117	0.0637	0.0824	0.0545	0.1314	0.0874	0.1018	-0.0745	0.1455*	0.0801
PRCFES5	0.0568	0.0409	0.1435*	0.1189	0.1950**	0.0955	0.1663*	0.0013	0.2389**	0.0766
PRCFES6	0.0931	0.1436*	0.1297	0.1223	0.1617*	0.1340*	0.2223**	0.0075	0.0321	0.0754
PRCFES7	0.1955**	0.1647*	0.2308**	0.0864	0.1784**	0.1254	0.1942**	0.0696	0.0799	0.1465*
PRCFES8	0.1651*	0.2534**	0.3211**	0.3930**	0.2347**	0.2476**	0.3543**	-0.0395	0.0136	0.1822**
PRCFES9	0.0467	0.1523*	0.0972	0.0542	0.0603	0.0946	0.0838	-0.0714	0.0485	-0.0264
PRCFES10	0.1076	0.1910**	0.1661*	0.0164	0.1260	0.1151	0.1486*	-0.0183	0.0308	0.0437
PRCFES11	0.1671*	0.1331	0.1137	0.0340	0.1954**	0.1948**	0.1754**	-0.0639	0.1950**	0.0442
PRCFES12	0.0456	0.1674*	0.2193**	0.2462**	0.1999**	0.1741**	0.1947**	-0.0017	0.0072	0.0586
PRCFES13	0.0972	0.1336	0.1247	-0.0262	0.1696*	0.1211	0.1557*	-0.1442*	0.0724	0.0696
PRCFES14	0.0061	0.0656	0.0614	-0.0119	0.0823	0.0744	0.0825	0.0244	0.0090	-0.1518
PRCFES15	0.1421*	0.1487*	0.1491*	0.0138	0.2453**	0.1235	0.1172	-0.1259	0.2257**	0.0454
PRCFES16	0.1467*	0.1205	0.0881	0.0345	0.0965	0.1264	0.0524	0.0368	0.0739	0.0774
PRCFES17	0.1873**	0.1695*	0.1069	0.0690	0.0972	0.1585*	0.1030	-0.0566	0.1991**	0.0788
PRCFES18	0.1924**	0.2783**	0.2631**	0.3101**	0.2923**	0.2257**	0.3016**	0.0179	0.1167	0.0872
PRCFES19	0.1152	0.1551*	0.1436*	0.1593*	0.1542*	0.0648	0.1064	-0.0541	0.0598	0.0273
PRCFES20	0.0418	0.0634	0.0711	-0.0333	0.0628	-0.0235	-0.0280	0.0444	0.1953**	0.0298
PRCFES21	0.1060	0.1053	0.0956	0.1281	0.0639	0.0787	0.1141	-0.1220	0.0438	0.0121
PRCFES22	0.1379*	0.1103	0.0587	0.0293	0.0498	0.1448*	0.0785	-0.0394	0.0924	0.1057
PRCFES23	0.1112	0.1276	0.2043**	0.0344	0.1529*	0.1749**	0.1618*	0.0615	0.1073	0.1029
PRCFES24	0.0416	0.0810	0.0687	0.0065	0.1147	0.0950	0.0438	0.0146	0.0357	-0.0199
PRCFES25	0.0471	0.0853	0.0325	0.0352	0.0428	0.0594	0.0612	0.0038	0.0809	0.0811

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	NACH4	NACH5	NACH6	NACH7	NACH8	NACH9	NACH10	NACH11	NACH12	NACH13
PALTH1	0.0048	0.0531	-0.0229	-0.0399	-0.1530*	-0.0185	-0.0594	-0.0368	-0.0825	0.0044
PALTH2	-0.0255	-0.0598	-0.0268	-0.0643	-0.0690	-0.0433	-0.1868**	-0.0146	-0.0846	-0.0187
PALTH3	-0.0193	-0.0072	-0.0273	-0.0564	-0.0449	-0.0005	-0.0991	-0.0018	-0.1184	0.0178
PALTH4	-0.0026	-0.0656	0.0063	-0.0896	-0.0931	0.0012	-0.1065	0.0162	-0.0537	0.0012
PAUTH5	-0.0374	-0.0941	-0.0235	-0.0606	-0.0582	0.3540	-0.1159	-0.0534	-0.0450	0.0301
APARTIC1	0.1237	-0.0088	-0.1430*	0.1911**	0.0294	-0.0265	0.0599	-0.1518*	-0.0010	0.0199
APARTIC2	0.1300	-0.0414	-0.1110	0.1720**	0.0422	-0.0450	0.0473	-0.1612*	0.0012	0.0493
APARTIC3	0.1625*	0.0045	-0.0773	0.1634*	0.0321	0.0093	0.0395	-0.0994	0.0545	0.0288
APARTIC4	0.1629*	0.0347	-0.0735	0.1457*	0.0069	-0.0171	0.0163	-0.1033	0.0342	0.0270
PCRPAL1	-0.0503	-0.0631	0.1078	-0.1518*	-0.0391	0.1184	-0.0642	-0.0416	-0.0007	0.0599
PCRPAL2	-0.0045	-0.0389	0.0771	-0.0439	0.0067	0.0452	0.0385	-0.0396	0.0480	-0.0113
PCRPAL3	-0.0369	-0.1147	-0.0480	-0.0439	-0.0006	-0.0317	-0.0674	-0.0763	-0.1196	0.0668
PCRPAL4	-0.0852	-0.0829	-0.0855	-0.0497	0.0030	-0.0345	-0.0558	-0.1039	-0.0540	0.0547
PCRPAL5	0.0002	-0.1074	-0.1497*	-0.0431	-0.0354	-0.0294	-0.0616	-0.1018	-0.0751	0.0152
PCRPAL6	-0.0658	-0.1270	0.0457	-0.1801	0.0263	0.0235	-0.0035	-0.0241	-0.0338	0.0965
PCRPAL7	-0.0863	0.0553	-0.0059	0.1467*	0.0020	0.0741	0.0490	0.0143	-0.0808	0.0390
PCRPAL8	0.0253	0.1114	0.0574	0.0602	-0.0254	0.1266	0.0577	0.0385	0.0920	0.0114
PCRPAL9	-0.0076	0.0298	-0.0629	0.0727	0.0381	0.1685*	-0.0167	0.0323	0.0841	0.0383
PCRPAL10	-0.0034	0.1595*	0.0121	0.0475	0.0459	0.0416	0.0523	0.0113	-0.0296	-0.0199
PCRPAL11	-0.0085	0.0490	0.0493	0.0901	-0.0030	0.0853	-0.0538	0.0027	-0.0057	-0.0360
PCRPAL12	0.0070	0.1823**	0.0294	0.0432	0.0129	0.0780	0.0777	-0.0420	-0.0107	-0.0482
PCRPAL13	-0.0300	0.1377*	0.0362	0.1402*	-0.0075	0.2171**	0.0344	0.0072	-0.0103	0.0307
PCRPAL14	-0.0219	0.0744	0.0132	0.0083	-0.0047	0.0796	0.0189	-0.0725	0.1056	-0.0258
PCRPAL15	0.0356	0.0284	-0.0373	0.0877	0.0903	0.0308	0.0613	0.0242	0.0350	0.0424
PAPAUTO	0.1461*	0.0021	-0.0242	0.0133	-0.0239	-0.0915	0.0085	-0.0542	0.0221	-0.0815
RESPOGEN	0.0246	-0.0125	-0.0974	0.0154	-0.1477*	-0.0787	-0.0584	-0.0219	-0.0409	-0.1523*
CCCPCCON	-0.0513	0.0115	0.0564	-0.0429	-0.1516*	-0.0301	-0.0278	0.0054	-0.0601	-0.1745**
CCCCEP	-0.0422	-0.0276	0.0169	-0.0321	-0.1378*	-0.0304	-0.1201	-0.0575	-0.0335	-0.0971
PCCSEFF	-0.0502	-0.0329	-0.0155	-0.0961	-0.0791	0.0213	-0.1368*	0.0129	-0.0984	-0.0952
SNEPDIST	0.0125	-0.0658	0.0591	-0.1123	0.0071	0.0129	-0.0313	0.0916	0.0459	-0.1078
ELTAGG	0.0516	0.0118	-0.0274	0.0134	0.0268	-0.0613	-0.0174	0.0084	-0.0136	-0.0941
CCPFEX	0.1520*	-0.0771	0.0115	0.0203	0.0406	-0.0523	0.0332	0.0424	0.0335	-0.1066
ACL1	0.0577	0.0568	-0.1251	0.1626*	0.0506	-0.0495	-0.0170	0.0585	-0.1066	0.0693
ACL2	0.0320	0.0223	-0.0191	0.0112	-0.0420	0.0821	0.1244	0.1042	-0.0213	-0.0776
ACL3	0.0754	0.0406	-0.0791	0.1526*	0.0896	0.0110	0.0850	-0.0253	-0.0969	0.0266
ACL4	0.0269	0.0692	-0.0114	0.0874	0.0062	-0.0355	0.0215	0.0607	-0.1162	-0.0471
ACL5	0.0178	0.0880	-0.0582	0.1222	0.0992	0.0325	0.0649	-0.0367	0.0056	0.0648
ACL6	-0.0351	-0.0705	0.0667	0.0249	-0.0005	-0.0026	0.0215	0.0064	-0.0309	0.0033
ACL7	0.0151	-0.0292	-0.1674*	0.0822	-0.0126	-0.0120	0.0053	-0.0003	-0.0253	0.0452
ACL8	-0.0058	-0.0274	-0.0403	0.1251	0.0381	0.0306	0.0129	0.0957	-0.0128	-0.0765
ACL9	0.0510	-0.0144	-0.0023	0.0631	0.1528*	0.0394	0.1780**	0.0005	0.0873	-0.0330

* - SIGNIF. LE .01 ** - SIGNIF. LE .001 (99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	NACH4	NACH5	NACH6	NACH7	NACH8	NACH9	NACH10	NACH11	NACH12	NACH13
PRCFES2	-0.0350	-0.0027	-0.0279	0.0634	-0.0455	-0.0490	-0.0300	0.0445	-0.1437*	0.0800
PRCFES3	0.0959	0.0465	-0.0981	0.1752**	0.0555	-0.0225	0.0932	0.0350	-0.0517	0.0132
PRCFES4	0.1218	-0.0141	-0.0192	0.1268	-0.1164	-0.0757	0.0525	-0.0759	0.0513	-0.0220
PRCFES5	0.0146	-0.0026	0.0095	0.0797	0.0184	-0.0372	0.0876	-0.0548	0.0344	0.1564*
PRCFES6	-0.0053	0.1171	-0.0931	0.0468	-0.0345	-0.0790	0.0560	0.0612	-0.0039	-0.1144
PRCFES7	0.0724	0.0545	0.0037	0.1552*	-0.0110	0.0016	0.0083	-0.0692	-0.0366	0.0950
PRCFES8	0.1231	0.0917	-0.1225	0.1434*	0.0209	-0.1005	0.1119	0.0950	-0.0910	0.3187
PRCFES9	0.0251	-0.0146	0.0541	0.0357	-0.0789	-0.0427	-0.0333	-0.0054	-0.0771	-0.0584
PRCFES10	0.0666	-0.0069	-0.0705	0.0619	-0.0600	0.0160	0.0151	-0.0134	-0.0123	-0.0649
PRCFES11	0.0162	0.0725	-0.0477	0.0574	0.0736	-0.1068	0.0281	-0.0602	-0.0451	0.0310
PRCFES12	0.0382	0.0390	-0.1027	0.0824	0.0066	-0.1078	0.1080	0.0983	0.0182	0.0134
PRCFES13	0.0374	-0.1005	-0.0093	0.1497*	-0.0675	0.0398	-0.0563	-0.0344	-0.0712	0.0322
PRCFES14	-0.0412	-0.1074	0.1119	-0.0047	0.0110	-0.0372	0.0272	-0.0196	-0.0110	0.0299
PRCFES15	0.0472	-0.0197	-0.1068	0.0364	-0.0926	-0.0401	0.0026	-0.1185	-0.0585	0.0663
PRCFES16	0.0506	0.0227	0.0075	0.1313	0.0054	0.0354	0.0156	-0.0462	0.0013	0.0242
PRCFES17	0.0751	-0.0070	-0.0856	0.0412	-0.0669	-0.0867	0.0748	-0.0614	-0.0483	0.0222
PRCFES18	0.0910	0.0629	-0.1234	0.1494*	0.0462	-0.0109	0.2228**	0.0157	-0.0054	0.0279
PRCFES19	0.0179	-0.0112	-0.0171	0.0905	-0.0024	-0.0062	0.0416	-0.0879	0.0163	-0.0130
PRCFES20	0.1223	-0.0147	0.0358	0.0261	-0.0602	-0.0237	0.1013	-0.0196	0.0549	0.0174
PRCFES21	-0.0136	-0.0373	-0.0803	0.0502	-0.0169	0.0074	-0.0558	-0.0083	-0.1514*	-0.0178
PRCFES22	0.0169	-0.0233	-0.0648	0.0805	-0.0453	-0.0544	0.0186	0.0566	-0.0213	0.0841
PRCFES23	0.0758	0.0634	-0.0324	0.1305	-0.0702	-0.0562	0.1649*	0.0009	0.0199	0.0201
PRCFES24	0.0411	-0.0317	0.0642	0.0474	-0.0031	0.0295	0.0191	0.0633	0.0317	0.0470
PRCFES25	0.1150	0.0425	0.0580	0.0236	-0.0172	0.0193	0.0697	-0.0360	0.0989	0.0394

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FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	NACH4	NACH5	NACH6	NACH7	NACH8	NACH9	NACH10	NACH11	NACH12	NACH13
JCL10	0.0629	0.1168	-0.0983	0.1936**	0.0558	-0.0156	0.1189	-0.0738	-0.0614	0.0148
JCL11	0.0530	0.0107	-0.0998	0.1615*	0.0413	0.0338	0.0709	-0.0925	0.0733	0.0010
JCL12	0.1116	0.1577*	-0.0643	0.2385**	0.0531	0.0262	0.2316**	-0.0892	0.0705	0.0420
JCL13	0.0768	0.1057	-0.0617	0.0747	0.0213	0.0583	0.0153	0.0136	-0.0238	0.0179
JCL14	0.1113	-0.0003	-0.0826	0.1235	-0.0236	-0.0188	0.0939	-0.0570	0.0690	-0.0253
JCL15	0.0358	0.1023	-0.0829	0.1892**	0.0721	0.0650	0.0884	-0.0335	-0.0333	0.0584
JCL16	-0.0280	0.0338	-0.1135	0.1440*	0.0486	0.0311	0.0673	-0.0301	-0.0138	0.0107
JCL17	0.0576	0.0509	-0.0071	0.0416	-0.0402	-0.0303	0.0148	-0.0919	0.0767	0.0724
JCL18	0.0184	0.0249	-0.1082	0.0907	-0.0578	0.0391	0.0395	-0.0386	-0.0097	0.0193
JCL19	-0.0079	0.1037	-0.1426*	0.1503*	-0.0230	0.1225	0.1113	0.0130	-0.0597	-0.0020
JCL20	0.0782	0.0993	-0.1113	0.1430*	-0.0375	0.0191	0.0661	-0.0635	0.0082	-0.0191
JCL21	0.0554	0.0401	-0.0663	0.2573**	0.0140	0.0343	0.0848	-0.0846	0.0145	0.0221
JCL22	0.1079	0.0855	-0.0257	0.1214	0.1391*	-0.0310	0.0567	-0.0140	-0.0623	0.1076
JCL23	0.1320	0.1379*	0.0114	0.1374*	0.0827	0.0762	0.1509*	-0.0994	-0.0076	0.0405
JCL24	0.0770	0.0584	-0.0746	0.0885	0.0088	-0.0301	0.0317	-0.0451	0.0341	0.0341
JCL25	0.0303	0.1418*	-0.1029	0.1771**	0.0212	-0.0324	0.0958	-0.0161	0.0101	0.0328
PRCP1	0.1163	0.0742	0.0341	0.1266	0.0936	0.1508*	0.0406	0.0008	0.2072**	-0.0100
PRCP2	0.2150**	0.2177**	-0.0898	0.0932	-0.0164	0.0556	0.1542*	-0.0779	0.0320	0.0556
PRCP3	0.1378	0.2356**	-0.0272	0.2007**	0.0583	0.0557	0.0731	0.0497	-0.0001	0.0798
PRCP4	1.0000	0.0742	0.0166	0.2100**	0.1109	0.0013	0.1473*	-0.0568	0.2057**	0.0636
PRCP5	0.0742	1.0000	0.0303	0.1935**	-0.0003	0.0104	0.2081**	0.1004	0.0698	0.0225
PRCP6	0.0166	0.0300	1.0000	0.0117	0.0397	0.0913	0.0997	-0.0035	0.1955**	-0.0016
PRCP7	0.2100**	0.1935**	0.0117	1.0000	0.0272	0.0131	0.0929	0.0387	0.0213	0.0473
PRCP8	0.1109	-0.0003	0.0397	0.0272	1.0000	-0.0328	0.0260	0.0618	0.0467	0.1688*
PRCP9	0.0013	0.0104	0.0913	0.0131	-0.0328	1.0000	0.0310	0.1074	0.0711	0.0045
PRCP10	0.1473*	0.2081**	0.0997	0.0929	0.0260	0.0310	1.0000	0.0478	0.1967**	-0.0190
PRCP11	-0.0568	0.1004	-0.0035	0.0387	0.0618	0.1074	0.0478	1.0000	-0.0176	0.0388
PRCP12	0.2057**	0.0698	0.1955**	0.0213	0.0467	0.0711	0.1967**	-0.0176	1.0000	-0.0157
PRCP13	0.0636	0.0225	-0.0016	0.0473	0.1688*	0.0045	-0.0190	0.0388	-0.0157	1.0000
PRCP14	0.1637*	-0.0049	-0.0423	0.1076	0.1439*	-0.0703	0.0666	0.0271	0.1431*	0.1484*
PRCP15	0.1044	0.0716	0.0794	0.0350	0.0435	0.1719**	0.1662*	0.0622	0.0864	0.0096
PRCP16	0.0387	0.0303	0.1448*	-0.0036	0.0103	0.0233	0.0553	0.0237	0.0663	0.0906
PRCP17	0.0519	0.0994	0.1227	-0.0432	0.0174	0.1256	0.0709	-0.0056	0.1289	-0.0530
PRCP18	0.1454*	-0.0781	-0.0782	-0.0164	0.1833**	-0.0376	0.0251	-0.0862	-0.0054	0.0496
PRCP19	0.0344	-0.0600	-0.0541	0.1079	0.1358*	0.0315	-0.0077	0.0915	0.0043	0.1099
PRCP20	0.0639	-0.0987	0.0996	-0.0450	0.0140	-0.0321	-0.0062	0.0155	0.1328	-0.0165
PRCP21	-0.0454	0.0363	-0.0033	0.0710	0.0494	0.0147	-0.1272	0.2090**	-0.0661	0.0707
PRCP22	0.1534*	0.0026	0.0159	0.1307	0.1937**	-0.0191	0.0463	0.0679	0.1574*	0.0861
PRCP23	0.0467	0.0530	0.1138	-0.0401	-0.0373	0.0604	0.0770	0.0099	0.1203	0.3483
PRCP24	0.1461*	0.2056**	0.0074	0.5189**	-0.0236	-0.0177	0.0672	0.0941	0.0196	0.1059
PRCFES1	0.1756**	0.0225	0.0412	0.0543	-0.0145	-0.0195	0.0700	-0.0779	0.0164	0.0134

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PEARSON CORRELATION COEFFICIENTS

	NACH14	NACH15	NACH16	NACH17	NACH18	NACH19	NACH20	NACH21	NACH22	NACH23
JCL1C	0.1038	-0.0257	0.0206	-0.0225	0.1243	0.0541	-0.0557	0.0660	0.0085	-0.0898
JCL11	0.1475*	0.0143	0.0325	-0.0815	0.0469	-0.0119	-0.1029	0.0200	0.0648	-0.0295
JCL12	0.1556*	0.0308	-0.0519	0.0383	-0.0063	0.0277	-0.0452	0.0329	-0.0037	-0.0705
JCL13	0.0734	0.0714	0.0289	0.0311	0.0240	0.0126	0.0040	0.0153	0.0092	0.0328
JCL14	0.0530	0.0241	0.0639	-0.0335	0.0612	0.0221	-0.1009	-0.0286	0.0424	-0.0209
JCL15	0.2033**	0.0394	0.0321	-0.0366	0.0445	0.0681	-0.0886	0.1220	0.0840	-0.0827
JCL16	0.1942**	0.0203	-0.0419	-0.0770	0.0857	0.0342	-0.1195	0.1014	0.1029	-0.0856
JCL17	0.0375	-0.0710	-0.0219	-0.0314	-0.0420	-0.0456	-0.0182	0.0183	0.0011	0.1321
JCL18	0.1220	-0.0719	-0.0437	-0.0172	0.0162	-0.0238	-0.0507	0.0135	-0.0845	-0.0378
JCL19	-0.0121	-0.0881	0.0407	-0.0759	0.0331	0.0191	-0.1246	0.0361	0.0236	0.0684
JCL2C	0.0761	-0.0850	-0.0149	-0.0246	0.0278	-0.0376	-0.0206	0.0630	0.0232	0.0360
JCL21	0.1685*	-0.0559	-0.0179	-0.0405	0.0611	0.0964	-0.1002	0.0571	0.0453	-0.0895
JCL22	0.1454*	0.0548	-0.0007	-0.0579	0.0547	0.0967	-0.0175	0.1245	0.0884	-0.0070
JCL23	0.1170	0.0685	-0.0272	0.0548	0.0623	0.0607	-0.0146	0.0694	0.0144	0.0157
JCL24	0.0847	-0.0132	0.0563	-0.0103	0.0598	0.0273	0.0149	0.0468	0.0520	-0.0956
JCL25	0.1473*	-0.0062	-0.0219	0.0081	-0.0013	0.0971	-0.0375	0.0916	0.0129	-0.0957
BACK1	0.0669	0.1525*	0.0584	0.0889	0.0168	0.0694	0.0230	-0.0477	0.0975	0.0066
BACK2	0.0090	-0.0455	0.0475	0.0606	-0.0196	-0.1116	-0.0144	-0.0339	-0.0813	0.0621
BACK3	0.0543	0.0263	0.0082	-0.0745	-0.0489	0.0215	-0.1041	-0.0455	0.0304	-0.0219
BACK4	0.1607*	0.1044	0.0367	0.0519	0.1454*	0.0344	0.0635	-0.0604	0.1534*	0.0467
BACK5	-0.0049	0.0716	0.0308	0.0904	-0.0781	-0.0670	-0.0987	0.0383	0.0028	0.0530
BACK6	-0.0423	0.0794	0.1444*	0.1227	-0.0782	-0.0541	0.0996	-0.0033	0.0158	0.1138
BACK7	0.1076	0.0350	-0.0036	-0.0432	-0.0164	0.1079	-0.0450	0.0710	0.1307	-0.0401
BACK8	0.1459*	0.0435	0.0103	0.0174	0.1433**	0.1358*	0.0140	0.0494	0.1937**	-0.0373
BACK9	-0.0703	0.1719**	0.0233	0.1256	0.0376	0.0313	-0.0321	0.0147	-0.0191	0.0604
BACK10	0.0666	0.1662*	0.0553	0.0719	0.0251	-0.0077	-0.0062	-0.1272	0.0863	0.0770
BACK11	0.0271	0.0622	0.0237	-0.0056	-0.0862	0.0915	0.0155	0.2090**	0.0679	0.0099
BACK12	0.1431*	0.0664	0.0663	0.1289	-0.0054	0.0043	0.1328	-0.0661	0.1574*	0.1203
BACK13	0.1464*	0.0096	0.0926	-0.0530	0.0496	0.1099	-0.0165	0.0797	0.0461	0.0483
BACK14	1.0000	-0.0292	0.0888	-0.0480	0.0885	0.0758	0.0862	0.0930	0.1836**	-0.0872
BACK15	-0.0292	1.0000	-0.0237	0.2118**	0.0548	0.0706	0.0601	0.0952	-0.0277	-0.0176
BACK16	0.0888	-0.0237	1.0000	0.0535	0.0042	-0.0300	0.0241	0.0364	0.0539	-0.0208
BACK17	-0.0480	0.2118**	0.0535	1.0000	-0.1213	-0.0661	0.0313	-0.0130	-0.0671	0.0679
BACK18	0.0885	0.0548	0.0042	-0.1213	1.0000	0.1878**	0.1472*	0.0335	0.3005**	-0.0028
BACK19	0.0758	0.0706	-0.0300	-0.0661	0.1878**	1.0000	0.0918	0.2196**	0.0925	0.0274
BACK20	0.0462	0.0601	0.0241	0.0313	0.1472*	0.0918	1.0000	-0.0382	0.1256	-0.0579
BACK21	0.0930	0.0952	0.0364	-0.0130	0.0335	0.2196**	-0.0382	1.0000	0.0198	-0.0282
BACK22	0.1836**	-0.0277	0.0539	-0.0671	0.3005**	0.0925	0.1256	0.0198	1.0000	0.0139
BACK23	-0.0972	-0.0176	-0.0208	0.0679	-0.0028	0.0274	-0.0579	-0.0282	0.0139	1.0000
BACK24	0.1406*	-0.0436	0.0453	-0.1015	0.0392	0.1171	-0.0030	0.0719	0.0773	0.0052
PRCFES1	0.0672	-0.0870	-0.0611	-0.0079	-0.0339	0.0251	0.0033	0.0151	0.0022	0.0889

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PEARSON CORRELATION COEFFICIENTS

	NACH14	NACH15	NACH16	NACH17	NACH18	NACH19	NACH20	NACH21	NACH22	NACH23
NALTH1	-0.0626	-0.0061	-0.0382	-0.0096	-0.0531	-0.1117	-0.0666	-0.0484	-0.0525	0.1663
NALTH2	-0.0517	-0.0985	-0.0497	-0.0059	-0.0339	-0.1322	-0.0585	-0.1239	-0.0274	-0.0277
NALTH3	-0.0284	-0.0183	-0.1278	0.0419	-0.0213	-0.0731	-0.0514	-0.0283	-0.0650	0.0362
NALTH4	-0.0556	-0.0191	-0.0817	0.0513	-0.0625	-0.0878	0.0092	0.0571	-0.0720	0.0619
NALTH5	-0.0460	-0.0171	-0.0290	0.0128	-0.0466	-0.1057	-0.1075	-0.0087	-0.0574	0.0151
APARTIC1	0.1841**	-0.0339	-0.0392	-0.0952	0.1221	0.0416	-0.0839	-0.0033	0.0396	-0.0086
APARTIC2	0.1878**	-0.0322	-0.0451	-0.0465	0.1183	0.0185	-0.1032	-0.0142	0.0364	-0.0201
APARTIC3	0.1927**	-0.0390	-0.0367	0.0141	0.1369	0.0762	-0.0611	-0.0004	0.0335	-0.0116
APARTIC4	0.1856**	-0.0204	0.0117	-0.0021	0.1038	0.0992	-0.0436	-0.0087	0.0256	-0.0030
FCRPAL1	-0.1472*	-0.0452	0.0030	0.0532	-0.0562	-0.0746	-0.0033	-0.1673	0.0334	0.3624
FCRPAL2	-0.0735	-0.0467	0.0690	-0.0319	0.0305	-0.1052	-0.0489	-0.0994	0.1041	0.3183
FCRPAL3	-0.0312	-0.2477**	-0.0333	-0.1657*	0.0126	-0.0340	-0.1196	-0.1296	0.0892	-0.0349
FCRPAL4	-0.0316	-0.1299	0.0470	-0.1585*	0.0101	-0.0028	-0.1111	-0.0639	0.0518	0.0143
FCRPAL5	-0.0171	-0.1381*	0.0246	-0.1090	-0.0381	-0.0648	-0.1542*	-0.0705	0.0354	0.0587
FCRPAL6	0.0302	-0.0560	-0.0163	-0.0918	-0.0446	-0.0586	-0.0893	-0.0373	0.0529	0.0688
FCRPAL7	-0.0721	0.0967	-0.1266	0.0114	0.0172	0.0926	0.0089	0.0422	0.0137	0.0648
FCRPAL8	-0.0512	0.1442*	-0.0211	0.1363*	0.0522	0.0635	0.0746	0.0892	-0.0424	0.0763
FCRPAL9	0.0311	0.2345**	0.0231	0.1305	0.0132	0.0556	0.0468	0.0458	-0.0351	-0.0213
FCRPAL10	0.0354	0.0613	0.0959	-0.0529	0.0671	0.0609	-0.0366	0.0958	-0.0380	0.0374
FCRPAL11	0.0722	0.0739	0.0586	0.0591	0.0484	0.0593	0.1136	-0.0347	-0.0501	0.0593
FCRPAL12	0.0340	0.0566	0.0092	-0.0347	0.0431	0.0599	-0.0149	0.0829	0.0268	0.0008
FCRPAL13	-0.0221	0.2121**	0.0294	0.1488*	-0.0317	0.0671	-0.0072	0.0543	0.0012	-0.0193
FCRPAL14	-0.0159	0.0124	-0.0035	0.0850	-0.0483	-0.0158	0.0129	0.0314	-0.0892	-0.0061
FCRPAL15	0.0522	0.0497	0.1089	-0.0258	-0.0163	0.0563	-0.0083	0.0127	0.0077	-0.0494
PARAUTO	0.1039	0.0310	-0.0437	-0.1002	0.0312	0.0521	-0.0635	0.0586	0.0661	0.0251
RESPCGEN	-0.0353	-0.1211	-0.1214	0.0050	-0.0478	-0.0091	-0.0016	0.0181	-0.0518	-0.0538
CCCPCCON	-0.0740	-0.0573	-0.0743	0.0235	-0.0793	-0.1176	-0.0185	0.0393	-0.0773	-0.0942
CCCCEP	-0.0011	-0.0981	-0.0112	-0.0222	-0.0339	0.0074	-0.0814	-0.0090	-0.0307	-0.0501
PCCSEFF	-0.0743	-0.1012	-0.0188	0.0191	-0.0940	-0.0343	-0.0414	0.0175	-0.0978	-0.0134
SNEFDIST	0.0281	0.0196	0.0145	-0.0145	0.0462	0.0872	0.0824	0.1017	-0.0035	-0.0176
ELIAGG	0.1169	0.0143	-0.0096	-0.0894	0.0244	0.0197	-0.0091	0.1618*	0.0722	-0.0470
CCPPCX	0.1043	0.0223	0.0171	-0.0508	0.0275	0.0611	0.0379	0.1086	0.0981	-0.0148
JCL1	0.1232	-0.0465	0.0134	-0.0806	0.0081	0.0487	-0.1255	0.1032	-0.0248	0.0087
JCL2	0.0961	-0.0218	-0.0492	0.0417	-0.0146	-0.0109	0.0103	0.0679	0.0631	0.0550
JCL3	0.0929	-0.0597	0.0407	-0.0316	0.0523	0.0373	-0.1216	0.0736	-0.0206	-0.0175
JCL4	0.0242	-0.0095	-0.0273	-0.0737	-0.0012	0.0744	-0.0313	0.1621*	-0.0372	0.0349
JCL5	0.1569*	0.0376	0.0461	-0.0262	-0.0087	0.0595	0.1032	0.0729	0.0620	0.0073
JCL6	0.0573	-0.0242	0.0617	0.0419	0.0169	0.0949	0.0147	0.0099	0.0207	0.0166
JCL7	0.0732	-0.0221	-0.0779	0.0035	0.0979	0.1588*	-0.0245	0.1599	0.0778	-0.0199
JCL8	0.0569	-0.0122	0.0729	0.0156	0.0237	-0.0671	-0.0450	0.0068	0.0264	-0.1001
JCL9	0.0751	0.0753	0.0339	0.0442	0.0716	0.0548	-0.0180	0.0232	0.0376	-0.0167

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

PEARSON CORRELATION COEFFICIENTS

	NACH14	NACH15	NACH16	NACH17	NACH18	NACH19	NACH20	NACH21	NACH22	NACH23
PRCFES2	0.0435	-0.0256	0.0573	0.0383	-0.0947	-0.0206	-0.0112	0.0605	0.0084	0.0043
PRCFES3	0.1161*	0.0699	-0.0047	-0.0648	0.1018	0.1697*	0.0154	0.0776	0.0478	-0.0296
PRCFES4	-0.0369	-0.0999	-0.0249	0.0784	-0.0835	-0.0815	0.0014	-0.1492*	-0.0753	0.1252
PRCFES5	0.0343	-0.1026	-0.0994	0.0667	0.0250	0.0544	-0.0071	-0.0494	0.0406	0.0912
PRCFES6	0.0472	0.0486	-0.1052	-0.0249	-0.0174	0.0122	0.0331	0.0562	-0.0580	0.0280
PRCFES7	0.1617*	-0.0044	0.0119	-0.0594	-0.0114	0.0013	-0.0387	-0.0391	0.0301	0.0140
PRCFES8	0.2362**	0.0848	-0.0451	-0.0742	0.0379	0.1370*	-0.0201	0.1505*	0.0001	-0.0776
PRCFES9	-0.0356	-0.1365*	0.0321	-0.0407	-0.0069	-0.0276	-0.0169	0.0771	0.0297	-0.0499
PRCFES10	0.0227	-0.0410	0.0314	0.0565	0.0248	-0.0411	-0.0432	-0.0294	-0.0058	0.0481
PRCFES11	-0.0131	-0.0787	-0.0189	0.0626	0.0075	-0.0240	-0.0509	0.0491	0.0576	0.0155
PRCFES12	0.1466*	0.0524	-0.0678	-0.0493	-0.0060	-0.0006	0.0218	0.0319	-0.0264	-0.0486
PRCFES13	0.0445	0.0047	-0.0122	0.0561	-0.0301	-0.0201	-0.0046	0.0575	0.0166	0.0084
PRCFES14	-0.0933	-0.0351	0.0457	0.0423	-0.0445	-0.0439	-0.0019	-0.0388	-0.0437	0.0462
PRCFES15	0.0027	-0.0696	-0.0742	0.1344*	-0.0448	-0.0097	-0.0934	0.0410	-0.1716**	0.0840
PRCFES16	0.0424	-0.0022	0.0224	0.0557	-0.0461	-0.0336	0.0531	0.0369	0.0864	0.0142
PRCFES17	-0.0142	-0.0214	-0.0519	0.0064	-0.0130	-0.0376	-0.0626	0.0232	-0.0777	0.0316
PRCFES18	0.1477*	-0.0186	0.0635	-0.0522	0.0455	0.1039	-0.0231	0.0561	-0.0156	0.0728
PRCFES19	0.0382	-0.0680	-0.0018	0.0330	-0.0734	-0.0336	-0.0812	0.0513	-0.0575	0.1283
PRCFES20	0.0209	0.0027	-0.0817	0.0436	-0.1274	-0.0795	-0.0122	-0.0967	-0.1055	0.0593
PRCFES21	-0.0251	-0.0554	-0.0453	0.0376	-0.0583	-0.0257	-0.0212	0.0827	0.0006	0.0414
PRCFES22	-0.0342	-0.0314	-0.0184	0.0559	-0.0877	-0.0394	-0.0474	-0.0710	-0.0704	0.0609
PRCFES23	0.0310	-0.0446	0.0314	0.1059	-0.0212	0.0462	-0.0180	-0.0393	0.0248	0.0033
PRCFES24	-0.0341	-0.0497	0.0419	0.0708	-0.0772	0.0297	-0.0380	-0.0158	0.0767	0.0805
PRCFES25	0.0553	-0.0416	-0.0194	0.0686	-0.0631	0.0535	0.1085	-0.0047	-0.0711	0.0747

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

PEARSON CORRELATION COEFFICIENTS

	NACH24	PROFES1	PROFES2	PROFES3	PROFES4	PROFES5	PROFES6	PROFES7	PROFES8	PROFES9
BALTH1	-0.0223	-0.1610	-0.0484	-0.2218**	0.0174	0.0161	-0.1194	-0.0523	-0.2759**	-0.1313
BALTH2	-0.0773	-0.0972	-0.1061	-0.2758**	0.0109	-0.0399	-0.1856**	-0.1126	-0.2661**	-0.0943
BALTH3	-0.0581	-0.0255	-0.1102	-0.2716**	0.0717	-0.0538	-0.1658*	-0.0828	-0.2272**	-0.1233
BALTH4	-0.0426	-0.0562	-0.1243	-0.3336**	0.0061	-0.0926	-0.1769**	-0.1353*	-0.3116**	-0.1184
BALTH5	-0.0527	-0.0801	-0.1159	-0.3426**	-0.0341	-0.0775	-0.1937**	-0.1148	-0.3539**	-0.1031
APARTIC1	0.1352*	0.1328	0.1152	0.3428**	0.1822**	0.2096**	0.1374*	0.3072**	0.3752**	0.3638
APARTIC2	0.1249	0.1905**	0.1179	0.2844**	0.1779**	0.2497**	0.0918	0.3549**	0.3521**	0.0901
APARTIC3	0.1078	0.1994**	0.0917	0.3154**	0.1750**	0.2581**	0.0932	0.3357**	0.3622**	0.0816
APARTIC4	0.1213	0.1772**	0.0629	0.3305**	0.2146**	0.2196**	0.0935	0.2818**	0.3948**	0.0896
FCRPAL1	-0.1304	-0.1008	-0.0936	-0.5214**	-0.0919	-0.0374	-0.3337**	-0.1958**	-0.6143**	-0.0837
FCRPAL2	-0.0267	-0.1257	-0.1133	-0.3180**	-0.1261	0.0643	-0.2576**	0.0119	-0.3579**	-0.0759
FCRPAL3	0.0467	-0.0230	0.0256	-0.0969	-0.0099	0.1382*	-0.0953	0.1575*	-0.1088	0.0721
FCRPAL4	0.0369	0.0166	0.0349	-0.1222	-0.0292	0.0423	-0.0643	0.1432*	-0.1018	0.0085
FCRPAL5	-0.0323	0.0311	0.0636	-0.1356*	0.0268	-0.0030	-0.0306	0.1473*	-0.0900	0.0794
FCRPAL6	0.0057	0.0577	0.1152	-0.1979**	-0.0038	0.0862	-0.1213	0.0831	-0.1712**	0.0156
FCRPAL7	0.0536	-0.1347*	-0.0762	0.0595	0.0236	0.0016	0.0366	0.0321	0.0616	-0.0302
FCRPAL8	0.0174	-0.1240	-0.1899**	-0.0078	-0.0605	-0.0593	0.0221	-0.0647	-0.0070	-0.0776
FCRPAL9	-0.0273	-0.1047	-0.1313	0.1151	-0.0779	-0.0366	0.1204	-0.0690	0.1019	-0.0629
FCRPAL10	0.0914	0.0196	0.0594	0.1921**	-0.0376	-0.0021	0.2193**	0.1147	0.2946**	0.0203
FCRPAL11	0.1511*	-0.1439*	-0.0591	0.0255	0.0272	0.0117	0.0509	0.1137	0.0247	-0.0361
FCRPAL12	0.1227	0.0322	-0.0138	0.2469**	-0.0514	-0.0169	0.2092**	0.0132	0.2662**	-0.0188
FCRPAL13	0.0354	-0.0511	-0.1071	0.1058	0.0030	-0.0199	0.0603	0.0063	0.0949	-0.0340
FCRPAL14	-0.0344	-0.0749	-0.1333	-0.0510	-0.0376	-0.0542	0.0347	-0.0379	-0.0243	-0.1352*
FCRPAL15	0.0681	0.0009	-0.0493	0.1496*	-0.0100	-0.0891	0.1021	0.0843	0.1288	-0.0869
PRAUTO	0.0814	0.0694	0.1163	0.2100**	0.0470	0.0897	0.1116	0.1359*	0.2825**	0.0885
RESPOGEN	0.0364	0.0413	0.0567	0.0242	0.0958	0.0749	0.0091	-0.0405	0.0570	0.0832
CCCPOCON	0.0303	-0.0750	0.0136	-0.0367	-0.0298	-0.0182	0.0175	-0.0546	-0.0132	0.0598
CCCCEP	-0.0868	-0.0610	0.0022	-0.1439*	-0.0041	0.0217	-0.0595	-0.0364	-0.0734	0.0162
PCCSEFF	-0.1085	-0.0733	-0.0758	-0.1632*	-0.0501	-0.0426	-0.1075	-0.1185	-0.1323	0.0042
SKEPDIST	-0.0927	-0.0453	-0.1142	0.0165	-0.0818	-0.0887	-0.0931	-0.1591*	-0.0199	-0.0093
ELTAGG	0.0030	0.0372	0.0302	0.2125**	-0.0024	-0.0110	0.1057	0.0051	0.1766**	0.0223
CCPPEX	0.0115	0.0833	0.0153	0.2387**	-0.0112	0.0019	0.1015	-0.0208	0.2202**	0.0146
JCL1	0.1171	0.0527	0.1510*	0.4741**	0.0482	0.0738	0.2476**	0.0992	0.5234**	0.0572
JCL2	0.0447	0.1429*	0.0106	0.1773**	0.0703	0.0882	0.1748**	0.0659	0.2383**	-0.0787
JCL3	0.1174	0.0947	0.1962**	0.2747**	0.0658	0.0785	0.1632*	0.1287	0.4108**	0.1058
JCL4	0.0330	0.0599	0.0897	0.2596**	-0.0288	0.1284	0.1770**	0.0751	0.2795**	0.0011
JCL5	0.0433	0.1362*	0.0919	0.3524**	-0.0193	0.0515	0.2012**	0.2355**	0.4073**	-0.0022
JCL6	-0.0025	0.0539	0.0493	0.0644	0.0662	0.0487	0.0299	-0.0554	0.1324	-0.0325
JCL7	-0.0070	0.0527	0.1184	0.1342*	0.0848	0.0932	0.1298	0.0331	0.1584*	0.0507
JCL8	0.0982	-0.0491	0.0842	0.0522	-0.0723	0.0488	0.0839	0.1151	0.0827	0.0898
JCL9	0.0814	0.0640	0.0643	0.2822**	0.0348	0.0690	0.1777**	0.1636*	0.3407**	0.0611

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FILE QSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	NACH24	PRCFES1	PROFES2	PROFES3	PROFES4	PROFES5	PROFES6	PROFES7	PROFES8	PROFES9
PRCFES2	0.0465	0.0696	1.0000	0.0881	0.1406*	0.1452*	0.0309	0.0280	0.1153	0.3006**
PRCFES3	0.1650*	0.1360**	0.0881	1.0000	0.1278	0.0849	0.2494**	0.0648	0.6213**	0.0411
PRCFES4	0.0613	0.3875**	0.1406*	0.1278	1.0000	0.2013**	-0.0086	0.0493	0.0177	0.0672
PRCFES5	0.1137	0.1121	0.1452*	0.0849	0.2013**	1.0000	0.0483	0.1386*	0.0817	0.0209
PRCFES6	0.0857	-0.0419	0.0309	0.2494**	-0.0086	0.0483	1.0000	0.0736	0.3300**	0.0295
PRCFES7	0.1793**	0.0659	0.0280	0.0648	0.0493	0.1386*	0.0736	1.0000	0.0672	-0.0112
PRCFES8	0.2975**	0.1153	0.1153	0.6213**	0.0177	0.0817	0.3300**	0.0672	1.0000	0.0932
PRCFES9	0.0374	0.0377	0.3006**	0.0411	0.0672	0.0209	0.0295	-0.0112	0.0932	1.0000
PRCFES10	0.0465	0.0601	0.0118	0.0907	0.0373	0.0707	-0.0083	0.3300**	0.1063	0.0769
PRCFES11	0.0617	0.1420*	0.2094**	0.0105	0.0990	0.3442**	0.0794	0.0581	0.0808	0.2245**
PRCFES12	0.0443	0.0139	0.0954	0.3843**	-0.0400	0.1065	0.3334**	0.1959**	0.4009**	-0.0188
PRCFES13	0.0322	0.1822**	0.4912**	0.1473*	-0.2267**	0.0975	0.0095	-0.0090	0.1150	0.2845**
PRCFES14	0.0250	0.0438	0.0590	-0.0309	0.0495	0.1367*	0.0517	0.2499**	-0.0212	0.0904
PRCFES15	0.0301	0.1517*	0.3235**	0.0624	0.2366**	0.3392**	0.1139	0.0967	0.1134	0.1419*
PRCFES16	0.0577	0.0989	0.3041**	0.0903	0.0994	0.0698	0.0325	0.0744	0.0261	0.1678*
PRCFES17	0.0118	0.2265**	0.1823**	0.0506	0.2445**	0.2412**	0.0502	0.0739	0.0697	0.2138**
PRCFES18	0.1210	0.0765	0.1563*	0.3537**	0.0547	0.1552*	0.2088**	0.1362*	0.4492**	0.0483
PRCFES19	0.1065	0.0930	-0.0058	0.0432	0.1171	0.2155**	0.0274	0.2825**	0.0030	0.0408
PRCFES20	0.0181	0.2912**	0.1145	0.1076	0.3018**	0.2095**	-0.0535	0.0473	0.0168	0.0664
PRCFES21	-0.0329	0.1892**	0.4836**	0.0674	0.1595*	0.1204	0.0049	-0.0330	0.0520	0.1776**
PRCFES22	0.0540	0.1427*	0.2577**	0.0298	0.1683*	0.1717**	0.0631	-0.0047	0.0862	0.1328
PRCFES23	0.0812	0.2684**	0.1333	0.0719	0.3039**	0.1467*	0.0204	0.1372*	0.0635	-0.0002
PRCFES24	0.0540	0.1377*	0.0377	0.0182	0.1191	0.1535*	-0.0523	0.3717**	-0.0039	0.0055
PRCFES25	0.0525	0.6421**	0.0372	0.0729	0.3276**	0.0379	-0.0201	0.0734	0.0761	-0.0094

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	NACH24	PRCFES1	PROFES2	PROFES3	PROFES4	PROFES5	PROFES6	PROFES7	PROFES8	PROFES9
JCL10	0.0723	0.1731**	0.1759**	0.3082**	0.0676	0.1450*	0.2020**	0.1196	0.4050**	0.1054
JCL11	0.0856	0.0069	0.1242	0.1915**	0.0537	0.1155	0.1313	0.2382**	0.1718**	0.0859
JCL12	0.1533*	0.1113	0.1371*	0.3242**	0.1431*	0.1908**	0.2729**	0.1847**	0.3387**	0.0811
JCL13	0.0762	0.0503	0.1547*	0.2051**	0.0860	0.0359	0.1541*	0.1192	0.2424**	0.0737
JCL14	0.0436	0.0523	0.0501	0.1845**	-0.0094	0.0522	0.0955	0.2077**	0.2397**	0.0992
JCL15	0.1744**	0.1335	0.0713	0.3782**	0.0957	0.1108	0.1519*	0.2615**	0.4410**	0.0940
JCL16	0.1389*	0.0438	0.0908	0.1976**	-0.0494	0.0822	0.1865**	0.2427**	0.2306**	0.0544
JCL17	0.0561	0.1864**	0.1824*	0.0355	0.2220**	0.0695	-0.0211	0.1811**	0.0927	-0.0797
JCL18	0.0909	0.0863	0.0976	0.0524	0.0692	0.1419*	0.0518	0.1970**	0.1785**	0.0667
JCL19	0.1290	0.0982	0.1183	0.1731**	0.1117	0.0568	0.0931	0.1955**	0.1651*	0.0407
JCL20	0.0788	0.1332	0.1415*	0.1938**	0.0637	0.0409	0.1438*	0.1647*	0.2534**	0.1523*
JCL21	0.1255	0.0643	0.1122	0.2832**	0.0824	0.1449*	0.1287	0.2368**	0.3211**	0.0972
JCL22	0.0319	0.0426	0.1492*	0.3765**	0.0543	0.1189	0.1223	0.0864	0.3930**	0.0542
JCL23	0.0563	0.0791	0.1462*	0.2179**	0.1314	0.1950**	0.1617*	0.1784**	0.2347**	0.0603
JCL24	0.1019	0.0985	0.1395*	0.2291**	0.0874	0.0955	0.1340*	0.1254	0.2476**	0.0946
JCL25	0.1135	0.0302	0.1524*	0.3395**	0.1018	0.1663*	0.2223**	0.1942**	0.3543**	0.0838
NACP1	0.0754	0.0021	-0.1781**	-0.0073	-0.0745	0.0018	0.0075	0.0696	-0.0395	-0.0714
NACP2	-0.0133	0.1111	0.0392	0.0108	0.1455*	0.2389**	0.0321	0.0799	0.0136	0.0485
NACP3	0.3930**	0.1028	-0.0021	0.1498*	0.0801	0.0766	0.0754	0.1465*	0.1822**	-0.0266
NACP4	0.1481*	0.1796**	-0.0053	0.0859	0.1218	0.0146	-0.0093	0.0724	0.1231	0.0291
NACP5	0.2056**	0.0225	-0.0027	0.0465	-0.0141	-0.0026	0.1171	0.0545	0.0917	-0.0148
NACP6	0.0074	0.0412	-0.0279	-0.0981	-0.0192	0.0095	-0.0931	0.0037	-0.1225	0.0541
NACP7	0.0169**	0.0543	0.0634	0.1752**	0.1264*	0.0797	0.0468	0.1552*	0.1434*	0.0357
NACP8	-0.0236	-0.0145	-0.0855	0.0555	-0.1104	0.0186	-0.0345	-0.0119	0.0209	-0.0789
NACP9	-0.0177	-0.0195	-0.0493	-0.0225	-0.0757	-0.0372	-0.0790	0.0014	-0.1005	-0.0427
NACP10	0.0672	0.0700	-0.0390	0.0932	0.0525	0.0876	0.0560	0.0083	0.1119	-0.0333
NACP11	0.0941	-0.0779	0.0445	0.0356	-0.0759	-0.0548	0.0612	-0.0492	0.0950	-0.0054
NACP12	0.0156	0.0164	-0.1437*	-0.0517	0.0513	0.0344	-0.0039	-0.0306	-0.0910	-0.0771
NACP13	0.1059	0.0134	0.0800	0.0132	-0.0220	0.1564*	-0.1144	0.0950	0.0187	-0.0584
NACP14	0.1406*	0.0672	0.0435	0.1361*	-0.0369	0.0043	0.0472	0.1617*	0.2362**	-0.0356
NACP15	-0.0436	-0.0870	-0.0256	0.0699	-0.0999	-0.1026	0.0486	-0.0044	0.0848	-0.1385*
NACP16	0.0453	-0.0611	0.0579	-0.0947	-0.0249	-0.0964	-0.1052	0.0118	-0.0451	0.0121
NACP17	-0.1015	-0.0079	0.0083	-0.0648	0.0784	0.0067	-0.0249	-0.0594	-0.0742	-0.0407
NACP18	0.0352	-0.0339	-0.0947	0.1018	-0.0835	0.0250	-0.0174	-0.0114	0.0379	-0.0089
NACP19	0.1171	0.0251	-0.0239	0.1697*	-0.0815	0.0584	0.0122	0.0013	0.1370*	-0.0226
NACP20	-0.0030	0.0033	-0.0112	0.0154	0.0014	-0.0071	0.0331	-0.0387	-0.0201	-0.0169
NACP21	0.0719	0.0151	0.0635	0.0776	-0.1492*	-0.0494	0.0562	-0.0391	0.1505*	0.0771
NACP22	0.0773	0.0022	0.0064	0.0478	-0.0753	0.0406	-0.0580	0.0301	0.0001	0.0297
NACP23	0.0032	0.0089	0.0243	-0.0296	0.1252	0.1912	0.0280	0.0145	-0.0776	-0.0490
NACP24	1.0000	0.0777	0.0465	0.1690*	0.0613	0.1137	0.0857	0.1793**	0.2075**	0.0374
PRCFES1	0.0777	1.0000	0.0899	0.1360*	0.3875**	0.1121	-0.0418	0.0659	0.1153	0.0377

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- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	PROFESIC	PROFESI1	PROFESI2	PROFESI3	PROFESI4	PROFESI5	PROFESI6	PROFESI7	PROFESI8	PROFESI9
HAUTH1	-0.0326	-0.0662	-0.1810**	0.0131	0.0945	-0.0136	-0.0318	0.0328	-0.2165**	-0.0470
HAUTH2	-0.0424	-0.0754	-0.2764**	-0.0226	-0.0192	-0.0246	-0.1088	-0.0029	-0.2666**	-0.1409*
HAUTH3	-0.1273	-0.1243	-0.3654**	-0.0493	-0.1024	-0.0342	-0.0486	.0.0072	-0.2849**	-0.1784**
HALTH4	-0.0954	-0.1795**	-0.3291**	-0.0763	-0.0734	-0.0756	-0.0949	-0.0522	-0.3378**	-0.1688*
HALTH5	-0.0445	-0.1454*	-0.3514**	-0.0467	-0.0166	-0.0049	-0.0454	0.0221	-0.2414**	-0.0535
AFARTIC1	0.1725**	0.1643**	0.2187**	0.0941	0.0168	0.2583**	0.0955	0.2687**	0.3227**	0.1016
AFARTIC2	0.1903**	0.2226**	0.2243**	0.1195	0.0181	0.2946**	0.1163	0.3191**	0.2751**	0.1356*
AFARTIC3	0.2021**	0.1214	0.2439**	0.1118	0.0188	0.2196**	0.0487	0.2403**	0.2949**	0.1149
AFARTIC4	0.1783**	0.1029	0.2049**	0.1057	0.0243	0.2046**	0.0561	0.2347**	0.2987**	0.0484
FCAPAL1	-0.1759**	-0.1172	-0.4177**	-0.0947	-0.0552	-0.1353*	-0.0950	-0.0281	-0.4240**	-0.1086
FCAPAL2	0.0962	-0.0767	-0.2150**	-0.0861	0.0270	-0.0643	-0.0739	0.0369	-0.2599**	-0.0569
FCAPAL3	0.0169	0.0670	-0.0284	-0.0117	0.0468	0.0828	0.0297	0.1234	-0.0419	0.1191
FCAPAL4	0.0596	0.1612*	-0.1119	-0.0194	0.0365	0.0707	-0.0217	0.1907**	0.0213	0.0915
FCAPAL5	0.0416	0.1456*	-0.1221	-0.0289	0.0543	0.1291	0.0147	0.1642*	0.0639	0.0879
FCAPAL6	-0.0223	0.1598*	-0.1776	0.0424	0.1263	0.0939	0.0179	0.1382	-0.0074	0.0606
FCAPAL7	-0.0865	-0.0821	0.0265	-0.0408	-0.0813	-0.0519	-0.0519	-0.1014	0.0244	0.0621
FCAPAL8	-0.0910	-0.1713**	0.0597	-0.1208	-0.0562	-0.1879**	-0.0691	-0.2599**	-0.0052	-0.0260
FCAPAL9	-0.0915	-0.1634**	0.1355*	-0.0984	-0.0698	-0.1502*	-0.1163	-0.2556**	0.0478	-0.0783
FCAPAL10	0.0162	0.0534	0.2271**	-0.0952	-0.0136	-0.0267	0.1034	-0.0634	0.2772**	0.1293
FCAPAL11	-0.0476	-0.1456*	-0.0199	-0.0401	-0.0391	-0.1333	-0.0771	-0.1456*	-0.0299	-0.0116
FCAPAL12	-0.0741	0.0356	0.0986	-0.0497	-0.1036	-0.0755	0.0852	-0.0322	0.1598*	0.0381
FCAPAL13	-0.0859	-0.1631*	0.0474	-0.0748	-0.1110	-0.1013	-0.0221	-0.1468*	0.0408	0.0114
FCAPAL14	-0.1943**	-0.1912**	0.0026	-0.1254	-0.1185	-0.1456*	-0.0665	-0.1837**	-0.0157	0.0288
FCAPAL15	-0.0912	-0.0696	0.1120	-0.1475*	-0.0817	-0.1024	-0.0668	-0.0711	0.0718	0.0423
PARAUTO	0.2253**	0.1239	0.1366*	0.1042	0.0797	0.1836**	-0.0377	0.0803	0.2355**	0.0737
RESPOGEN	0.0697	0.1320	-0.0585	0.0651	-0.0178	0.1375*	-0.0210	0.1446*	0.0559	0.0195
CCCPOCUN	0.1066	0.0111	-0.0267	-0.0112	0.0715	0.0331	-0.0481	0.0474	-0.0055	0.0357
CCCCEP	0.1340*	0.0590	-0.1694*	0.0235	0.0564	0.0755	-0.0279	0.1227	-0.0423	0.0113
RCESEFF	-0.0182	-0.0007	-0.1777**	-0.0167	0.0145	0.0163	-0.1120	-0.0488	-0.0652	-0.0038
SREPDIST	-0.0670	-0.1710**	-0.1330*	-0.0899	-0.0257	-0.1427*	-0.1493*	-0.1225	-0.0744	-0.1305
ELIAGG	0.1349*	0.0028	0.0605	0.0379	0.0680	0.0787	-0.0987	-0.0149	0.1776	0.0098
CCPPEX	0.1347*	-0.0340	0.0521	0.0710	0.0874	0.0268	-0.0525	-0.0747	0.1226	0.0162
JCL1	0.0768	0.1597*	0.2859**	0.1214	-0.0601	0.1672*	0.1057	0.1774**	0.3992**	0.0645
JCL2	0.0739	0.0586	0.2583**	0.0124	0.1318	0.0603	0.1331	0.0946	0.1950**	0.1146
JCL3	0.1439*	0.1609*	0.2124**	0.1035	0.0745	0.1659*	0.1340*	0.1529*	0.3964**	0.1122
JCL4	0.0550	0.0604	0.1458*	0.0536	0.0474	0.0633	-0.0378	0.0566	0.1943**	0.0657
JCL5	0.1343*	0.0786	0.2533**	0.0543	0.0526	0.0491	0.0748	0.0613	0.2544**	0.0462
JCL6	0.1026	0.0803	0.2408	0.1185	0.0717	0.1269	0.0503	0.1629*	0.0563	0.0621
JCL7	0.1154	0.0965	0.0659	0.1247	0.0004	0.1066	0.0025	0.0975	0.1443*	-0.0469
JCL8	0.1599*	0.1447*	0.0570	0.0596	0.0684	0.0437	-0.0003	0.0965	0.0948	0.0522
JCL9	0.0651	0.1376*	0.3207**	0.0138	0.0361	0.0523	0.0978	0.0774	0.2953**	0.1068

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	PPOFESIC	PROFESI1	PROFESI2	PROFESI3	PROFESI4	PROFESI5	PROFESI6	PROFESI7	PROFESI8	PROFESI9
JCL10	0.0948	0.1871**	0.2671**	0.1273	0.0624	0.2762**	0.1513*	0.1788**	0.3750**	0.0313
JCL11	0.1378*	0.0754	0.2148**	0.1174	0.0452	0.1201	0.0513	0.0558	0.2583**	0.1291
JCL12	0.1381*	0.1979**	0.2646**	0.1174	0.0425	0.1865**	0.1200	0.2082**	0.3958**	0.1030
JCL13	0.0841	0.0912	0.1875**	0.0880	0.0379	0.1305	0.1617*	0.0843	0.1826**	0.0768
JCL14	0.2867**	0.0624	0.1779**	0.0403	0.1591*	0.0261	0.1393*	0.0963	0.2375**	0.1386*
JCL15	0.1874**	0.1196	0.2546**	0.1235	0.1280	0.1982**	0.1696*	0.0574	0.3013**	0.0852
JCL16	0.1120	0.1223	0.1638*	0.1115	0.0584	0.0860	0.0491	0.0270	0.2291**	0.1655*
JCL17	0.1145	0.0393	0.0640	0.1761**	0.1156	0.1596*	0.0944	0.1424*	0.1664*	0.1821**
JCL18	0.1638*	0.1573*	0.1100	0.1039	0.0553	0.1709**	0.0307	0.2426**	0.1099	0.1362*
JCL19	0.1078	0.1671*	0.0690	0.0972	0.0061	0.1421*	0.1407*	0.1873**	0.1924**	0.1152
JCL20	0.1910**	0.1331	0.1634*	0.1336	0.0666	0.1407*	0.1205	0.1695*	0.2783**	0.1551*
JCL21	0.1663*	0.1137	0.2103**	0.1247	0.0614	0.1491*	0.0481	0.1063	0.2631**	0.1436*
JCL22	0.0164	0.0340	0.2462**	-0.0282	-0.0119	0.0138	0.0345	0.0490	0.3101**	0.1523*
JCL23	0.1280	0.1994**	0.1999**	0.1696*	0.0823	0.2453**	0.0965	0.0972	0.2823**	0.1542*
JCL24	0.1151	0.1948**	0.1741**	0.1211	0.0744	0.1235	0.1264	0.1589*	0.2257**	0.0648
JCL25	0.1486*	0.1754**	0.1947**	0.1557*	0.0025	0.1172	0.0524	0.1030	0.3016**	0.1064
ABCP1	-0.0183	-0.0639	-0.0017	-0.1442*	0.0244	-0.1259	0.0368	-0.0566	0.0179	-0.0541
ABCP2	0.0368	0.1550**	0.0072	0.0724	0.0090	0.2257**	0.0739	0.1991**	0.1167	0.0598
ABCP3	0.0437	0.0442	0.0586	0.0686	-0.0518	0.0454	0.0774	0.0786	0.0872	0.0273
ABCP4	0.0666	0.0102	0.0382	0.0374	-0.0412	0.0472	0.0506	0.0751	0.0910	0.0179
ABCP5	-0.0069	0.0725	0.0381	-0.1009	-0.1074	-0.0197	0.0227	-0.0076	0.0620	-0.0112
ABCP6	-0.0705	-0.0477	-0.1027	-0.0093	0.1119	-0.1068	0.0075	-0.0856	-0.1234	-0.0171
ABCP7	0.0619	0.0574	0.0824	0.1497*	-0.0047	0.0384	0.1313	0.0412	0.1494*	0.0809
ABCP8	-0.0660	0.0736	0.0266	-0.0675	0.0110	-0.0926	0.0054	-0.0669	0.0462	-0.0024
ABCP9	0.0160	-0.1068	-0.1078	0.0308	-0.0372	-0.0401	0.0354	-0.0867	-0.0169	-0.0082
ABCP10	0.0151	0.0241	0.1091	-0.0963	0.0272	0.0026	0.0156	0.0748	0.2228**	0.0416
ABCP11	-0.0134	-0.0602	0.0983	-0.0044	-0.0196	-0.1185	-0.0462	-0.0614	0.0157	-0.0879
ABCP12	-0.0123	-0.0431	0.0182	-0.0712	-0.0110	-0.0585	0.0013	-0.0483	-0.0054	0.0163
ABCP13	-0.0649	0.0310	0.0134	0.0322	0.0299	0.0663	0.0242	0.0222	0.0279	-0.0130
ABCP14	0.0227	-0.0131	0.1466*	0.0445	-0.0833	0.0027	0.0424	-0.0142	0.1477*	0.0082
ABCP15	-0.0410	-0.0797	0.0524	0.0547	-0.0351	-0.0696	-0.0622	-0.0214	-0.0188	-0.0680
ABCP16	0.0314	-0.0189	-0.0678	-0.0122	0.0457	-0.0742	0.0224	-0.0510	0.0635	-0.0018
ABCP17	0.0565	0.0626	-0.0493	0.0561	0.0423	0.1364*	0.0557	0.0054	-0.0522	0.0030
ABCP18	0.0248	0.0075	-0.0000	-0.0501	-0.0445	-0.0848	-0.0401	-0.0130	0.0455	-0.0734
ABCP19	-0.0411	-0.0240	-0.0006	-0.0201	-0.0039	-0.0097	-0.0339	-0.0370	0.1039	-0.0336
ABCP20	-0.0432	-0.0539	0.0018	-0.0046	-0.0019	-0.0534	0.0531	-0.0626	-0.0231	-0.0812
ABCP21	-0.0254	0.0401	0.0319	0.0575	-0.0368	0.0416	0.0360	0.0232	0.0561	0.0510
ABCP22	-0.0058	0.0376	-0.0284	0.0166	-0.0637	-0.1716**	0.0884	-0.0777	-0.0156	-0.0575
ABCP23	0.0481	0.0155	-0.0486	0.0084	0.0462	0.0840	0.0142	0.0316	0.0728	0.1283
ABCP24	0.0465	0.0617	0.0443	0.0322	0.0290	0.0301	0.0577	0.0118	0.1210	0.1065
PFCFES1	0.0861	0.1420*	0.0139	0.1829**	0.0468	0.1507*	0.0989	0.2265**	0.0765	0.0930

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FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	PROFES10	PROFES11	PROFES12	PROFES13	PROFES14	PROFES15	PROFES16	PROFES17	PROFES18	PROFES19
PROFES2	0.0114	0.2694**	0.0954	0.4912**	0.0590	0.3235**	0.3040**	0.1828**	0.1563*	-0.0058
PROFES3	0.0967	0.0105	0.3843**	0.1473*	-0.0309	0.0624	0.0803	0.0506	0.3537**	0.0432
PROFES4	0.0373	0.0990	-0.3420	0.2267**	0.0495	0.2346**	0.0994	0.2445**	0.0547	0.1171
PROFES5	0.0767	0.3442**	0.1065	0.0975	0.1367*	0.3352**	0.0658	0.2412**	0.1552*	0.2155**
PROFES6	-0.0083	0.0794	0.3334**	0.0065	0.0517	0.1139	0.0323	0.0502	0.2068**	0.0274
PROFES7	0.3330**	0.0581	0.1959**	-0.0090	0.2499**	0.0967	0.0744	0.0739	0.1362*	0.2825**
PROFES8	0.1003	0.0808	0.4009**	0.1150	-0.0212	0.1134	0.0261	0.0697	0.4492**	0.0033
PROFES9	0.0769	0.2245**	-0.0189	0.2845**	0.0904	0.1419*	0.1678*	0.2138**	0.0483	0.0408
PROFES10	1.0000	0.0971	0.0745	0.1261	0.3267**	0.1316	0.1189	0.0791	0.1492*	0.3244**
PROFES11	0.0971	1.0000	0.0544	0.1758**	0.1237	0.4169**	0.2532**	0.3512**	0.1824**	0.1461
PROFES12	0.0745	0.0544	1.0000	0.0117	0.0089	0.0795	0.1196	-0.0172	0.3340**	0.0507
PROFES13	0.1261	0.1758**	0.0117	1.0000	0.0577	0.3556**	0.2944**	0.1604*	0.0065	0.0151
PROFES14	0.3267**	0.1237	0.0089	0.0577	1.0000	0.2068**	0.0960	0.0793	0.1336	0.2274**
PROFES15	0.1316	0.4169**	0.0795	0.3556**	0.2068**	1.0000	0.2201**	0.4043**	0.1707**	0.2168**
PROFES16	0.1189	0.2532**	0.1196	0.2944**	0.0960	0.2201**	1.0000	0.2080**	0.1135	0.1010
PROFES17	0.0791	0.3512**	-0.0172	0.1604*	0.0790	0.4043**	0.2080**	1.0000	0.1243	0.2034**
PROFES18	0.1492*	0.1824**	0.3340**	0.0065	0.1336	0.1707**	0.1135	0.1243	1.0000	0.2636**
PROFES19	0.3244**	0.1461	0.0507	0.0151	0.2274**	0.2168**	0.1010	0.2034**	0.2636**	1.0000
PROFES20	0.0137	0.1366*	0.0348	0.1444*	0.1484*	0.1892**	0.1000	0.3046**	0.1163	0.2069**
PROFES21	0.0427	0.0744	0.0072	0.4418**	0.0308	0.2305**	0.2575**	0.1927**	0.1065	0.0919
PROFES22	0.1130	0.2159**	0.0076	0.2546**	0.1258	0.2618**	0.2410**	0.4345**	0.1351*	0.1614*
PROFES23	0.0968	0.1278	0.1140	0.0677	0.0308	0.3833	0.1414*	0.2243**	0.1183	0.0446
PROFES24	0.3170**	0.0514	0.0352	0.0095	0.4065**	0.0698	0.1158	0.0697	0.1033	0.3192**
PROFES25	0.0650	0.0125	0.0071	0.0475	0.0974	0.3843	-0.0346	0.1519	0.0858	0.3660

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FILE OSTUCY1 (CREATION DATE = 01/10/84)

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	PROFES20	PROFES21	PROFES22	PROFES23	PROFES24	PROFES25
HALTH1	0.0585	0.0393	0.0062	-0.0653	-0.0418	-0.1034
HALTH2	0.0264	0.0231	0.0066	-0.1000	-0.1120	-0.0762
HALTH3	0.0127	-0.0124	0.0037	-0.0829	-0.1115	-0.0567
HALTH4	-0.0184	-0.0763	-0.0457	-0.0848	-0.1089	0.0275
HALTH5	0.1024	-0.0780	-0.0231	-0.0857	-0.1918	-0.0855
APARTIC1	0.0863	0.0414	0.0853	0.1940**	0.0836	0.1325
APARTIC2	0.1268	0.0621	0.1197	0.1959**	0.1101	0.1058
APARTIC3	0.1428*	0.0810	0.0935	0.2153**	0.1284	0.1694*
APARTIC4	0.1373*	0.0567	0.0696	0.2197**	0.1985	0.1599*
FCBPAL1	-0.0098	-0.0731	-0.0631	-0.1272	-0.0399	-0.0730
FCBPAL2	0.0179	-0.1119	-0.0749	-0.0199	0.0373	-0.0536
FCBPAL3	0.0769	-0.0134	0.0069	-0.0469	0.0600	-0.0576
FCBPAL4	0.0386	0.0568	0.0735	0.0446	0.0576	0.0546
FCBPAL5	0.0572	0.0536	0.1051	0.0632	0.0694	0.0655
FCBPAL6	0.0472	0.0585	0.1013	0.1272	0.1175	0.1158
FCBPAL7	-0.0082	-0.1019	-0.1085	-0.0236	-0.0135	-0.0196
FCBPAL8	-0.0467	-0.1317	-0.2083**	-0.0549	-0.0706	-0.0244
FCBPAL9	-0.0702	-0.1121	-0.1748**	-0.0772	-0.1040	-0.0274
FCBPAL10	-0.0451	0.0739	-0.0159	0.0693	0.0263	0.0511
FCBPAL11	-0.0574	-0.0069	-0.1259	-0.0635	-0.0799	-0.0276
FCBPAL12	-0.0552	0.0674	-0.0576	0.0153	-0.0745	-0.0358
FCBPAL13	-0.0062	-0.0327	-0.1991**	-0.0373	-0.0842	0.0017
FCBPAL14	-0.0784	-0.1563*	-0.2072**	-0.1535*	-0.1218	-0.0136
FCBPAL15	-0.0142	-0.0670	-0.1167	-0.0212	-0.0694	0.0683
RRAUTO	-0.0358	0.0847	0.0585	-0.0597	0.0180	-0.0487
RESPOGEN	-0.0246	0.0072	0.0531	0.0381	0.0451	0.0074
CCCPOCON	-0.0313	-0.0111	0.0112	0.0223	-0.0018	-0.0753
CCCCEP	-0.0383	-0.0125	0.0507	0.0441	0.0283	-0.0657
PCCSEFF	-0.1044	-0.0481	-0.0533	-0.0292	0.0326	-0.0437
SNEPOIST	-0.0236	0.0025	-0.1399*	-0.1609*	0.0337	-0.0354
ELTAGG	-0.0662	0.0566	-0.0502	-0.1485*	0.0061	-0.0386
CCPPEX	-0.0119	0.0545	-0.0152	-0.0891	0.0848	0.0286
JCL1	0.0563	0.1091	0.1358*	0.0792	-0.0241	0.0105
JCL2	0.1043	0.0598	0.0658	0.1919**	0.1258	0.0891
JCL3	0.0484	0.0433	0.1579*	0.1713**	0.0847	0.0243
JCL4	0.0266	0.0845	0.0883	0.0435	0.0169	0.0297
JCL5	-0.0668	-0.0449	0.0358	0.0684	0.0512	0.1452*
JCL6	0.0331	0.0977	0.1455*	0.0993	-0.0362	0.0728
JCL7	-0.0431	0.0562	0.1022	0.1126	0.0107	0.0621
JCL8	-0.0854	-0.0419	0.1115	0.0113	0.0228	-0.0696
JCL9	-0.0135	0.0547	0.0640	0.1112	0.0455	0.0094

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	PROFES20	PRCFES21	PROFES22	PROFES23	PROFES24	PROFES25
JCL1C	-0.0030	0.1526*	0.1044	0.1518*	0.0933	0.0933
JCL11	0.0665	0.0462	-0.0159	0.1387*	0.0587	-0.0621
JCL12	0.1528*	0.0759	0.0927	0.2261**	0.0926*	0.0559
JCL13	-0.0267	0.0297	0.1200	0.1927**	0.0300	-0.0169
JCL14	0.0748	0.0143	0.1451*	0.1667*	0.1627*	0.1522
JCL15	0.0662	0.0521	0.1042	0.1914**	0.0541	0.0913
JCL16	0.0534	0.0212	0.0259	0.1232	0.0873	0.0485
JCL17	0.0611	0.0958	0.1519*	0.1215	0.1319	0.1909**
JCL18	0.0146	0.0356	0.2022**	0.1469**	0.0264	0.0577
JCL19	0.0618	0.1090	0.1379*	0.1312	0.0416	0.0471
JCL20	0.0634	0.1053	0.1103	0.1078	0.0810	0.0853
JCL21	0.0711	0.0956	0.0587	0.2043**	0.0487	0.0325
JCL22	-0.0333	0.1281	0.0293	0.0344	0.0065	0.0352
JCL23	0.0528	0.0639	0.0498	0.1529*	0.1147	0.0428
JCL24	-0.0235	0.0787	0.1448*	0.1749**	0.0950	0.0594
JCL25	-0.0080	0.1141	0.0785	0.1618*	0.0438	0.0612
PACM1	0.0444	-0.1220	-0.0374	0.0615	0.0146	0.0038
PACM2	0.1953**	0.0438	0.0924	0.1073	0.0337	0.0809
PACM3	0.0258	0.0121	0.1037	0.1029	-0.0199	0.0811
PACM4	0.1223	-0.0136	0.0149	0.0758	0.0411	0.1190
PACM5	-0.0147	-0.0373	-0.0233	0.0634	-0.0317	0.0425
PACM6	0.0358	-0.0803	-0.0649	-0.0324	0.0642	0.0546
PACM7	0.0261	0.0502	0.0805	0.1305	0.0474	0.0236
PACM8	-0.0662	-0.0169	-0.0453	-0.0702	-0.0231	-0.0172
PACM9	-0.0237	0.0474	-0.0544	-0.0562	0.0295	0.0193
PACM10	0.1013	-0.0558	0.0186	0.1549*	0.0151	0.0697
PACM11	-0.0166	-0.0063	0.0566	0.0009	0.0633	-0.0040
PACM12	0.0549	-0.1514*	-0.0213	0.0199	0.0317	0.0989
PACM13	0.0174	-0.0178	0.0441	0.0201	0.0470	0.0094
PACM14	0.0269	-0.0291	-0.0342	0.0310	-0.0341	0.0593
PACM15	0.0027	-0.0554	-0.0314	-0.0444	-0.0497	-0.0416
PACM16	-0.0017	-0.0453	-0.0184	0.0314	0.0419	-0.0194
PACM17	0.0836	0.0376	0.0559	0.1059	0.0708	0.0686
PACM18	-0.1274	-0.0583	-0.0877	-0.0212	-0.0772	-0.0631
PACM19	-0.0759	-0.0257	-0.0394	0.0462	0.0297	0.0535
PACM20	-0.0122	-0.0212	-0.0474	-0.0150	-0.0380	0.1095
PACM21	-0.0987	0.0827	-0.0710	-0.0383	-0.0158	-0.0047
PACM22	-0.1055	0.0036	-0.0734	0.0248	0.0767	-0.0711
PACM23	0.0553	0.0414*	0.0809	0.0033	0.0865	0.0747
PACM24	0.0181	-0.0329	0.0540	0.0812	0.0540	0.0529
PROFES1	0.2912**	0.1892**	0.1427*	0.2684**	0.1377*	0.6421**

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	PROFES20	PRCFES21	PROFES22	PROFES23	PROFES24	PROFES25
PRCFES2	0.1145	0.4806**	0.2577**	0.1303	0.0377	0.0372
PRCFES3	0.1076	0.0874	0.0294	0.0719	0.0182	0.0729
PRCFES4	0.3018**	0.1595*	0.1683*	0.3039**	0.1191	0.3276**
PRCFES5	0.2755**	0.1204	0.1717**	0.1467*	0.1535*	0.0375
PRCFES6	-0.0535	0.0049	0.0631	0.0204	-0.0523	-0.0201
PRCFES7	0.0473	-0.0330	-0.0047	0.1372*	0.1717**	0.0736
PRCFES8	0.0168	0.0520	0.0862	0.0635	-0.0039	0.0701
PRCFES9	0.0664	0.1776**	0.1328	-0.0002	0.0055	-0.0094
PRCFES10	0.0137	0.0427	0.1133	0.0968	0.1170**	0.0650
PRCFES11	0.1366*	0.0744	0.2159**	0.1278	0.0514	0.0125
PRCFES12	0.0348	0.0072	0.0076	0.1140	0.0352	0.0071
PRCFES13	0.1444*	0.1418**	0.2544**	0.0677	0.0865	0.0475
PRCFES14	0.1484*	0.0338	0.1258	0.0308	0.1065**	0.0974
PRCFES15	0.1892**	0.2335**	0.2618**	0.0833	0.0698	0.0843
PRCFES16	0.1000	0.2575**	0.2410**	0.1418*	0.1158	-0.0346
PRCFES17	0.3946**	0.1927**	0.4345**	0.2243**	0.0697	0.1019
PRCFES18	0.1163	0.1005	0.1351*	0.1183	0.1033	0.0858
PRCFES19	0.2369**	0.0519	0.1614*	0.0440	0.3192**	0.0840
PRCFES20	1.0000	0.0643	0.2422**	0.3161**	0.1783**	0.1362*
PRCFES21	0.0643	1.0000	0.1858**	0.1265	0.0333	0.1203
PRCFES22	0.2422**	0.1858**	1.0000	0.2943**	0.1055	0.0221
PRCFES23	0.3161**	0.1265	0.2943**	1.0000	0.2271**	0.2094**
PRCFES24	0.1783**	0.0333	0.1055	0.2271**	1.0000	0.1886**
PRCFES25	0.1362*	0.1203	0.0221	0.2094**	0.1886**	1.0000

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APPENDIX 8

Factor Analysis of Scales

Aiken and Hage's (1967) measures of Centralisation and Formalisation

A factor analysis of the Formalisation scale was undertaken only. Miller (1977) presents five sub-scales comprising the overall Formalisation scale. These were:

- Job Codification
- Rule Observation
- the presence of a Rule Manual
- the presence of a Job Description
- Specificity of Job Description

The factor analysis revealed that three factors accounted for the variance. Factor 1 was labelled Organisational Procedures. Factor 2 was labelled Discretion/Autonomy and Factor 3 Closeness of Supervision. Using factor loadings greater than 0.3 the results indicated that items Formal 2,6 and 12 were impure items since they loaded significantly on more than one factor. Dewar et al (1980) undertook a reliability and validity analysis of the Formalisation scale. They labelled Job codification-Job Autonomy, and Rule Observation-Surveillance. They are in agreement with the present analysis. The present study and that of Dewar et al has indicated the Formalisation scale of Aiken and Hage (1967) requires considerable revision in terms of its operationalisation.

Furthermore, a correlation analysis of the Centralisation and Formalisation scales indicated significant inter-item correlations between Hierarchy of Authority and those in the sub-scales of Formalisation. This suggests they are tapping similar item contents (see Appendix 7).

FILE QSTUDY1 (CREATION DATE = 01/13/84)

FACTOR MATRIX USING PRINCIPAL FACTOR WITH ITERATIONS

	FACTOR 1	FACTOR 2	FACTOR 3
FORMAL1	-0.26426	0.33106	-0.36951
FORMAL2	-0.34926	0.45805	-0.16802
FORMAL3	-0.54011	0.33290	0.17339
FORMAL4	-0.61833	0.38288	0.32951
FORMAL5	-0.53869	0.27608	0.41475
FORMAL6	-0.52586	0.02608	0.18456
FORMAL7	0.44951	0.34006	0.11343
FORMAL8	0.61900	0.35207	-0.20633
FORMAL9	0.63565	0.20062	-0.07443
FORMAL10	0.53379	-0.13915	0.51515
FORMAL11	0.35122	0.21531	0.11482
FORMAL12	0.47268	-0.04448	0.42522
FORMAL13	0.64523	-0.36803	0.05369
FORMAL14	0.43256	0.34701	-0.05622
FORMAL15	0.39713	0.06054	0.18004

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
FORMAL1	0.32962	1	3.90932	62.1	62.1
FORMAL2	0.39745	2	1.31607	20.9	83.0
FORMAL3	0.46839	3	1.06829	17.0	100.0
FORMAL4	0.63750				
FORMAL5	0.59480				
FORMAL6	0.31127				
FORMAL7	0.33038				
FORMAL8	0.55566				
FORMAL9	0.44984				
FORMAL10	0.56967				
FORMAL11	0.18289				
FORMAL12	0.40622				
FORMAL13	0.55509				
FORMAL14	0.31110				
FORMAL15	0.19379				

FILE QSTUDY1 (CREATION DATE = 01/13/84)

VARIMAX ROTATED FACTOR MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3
FORMAL1	0.05674	0.12411	-0.55767
FORMAL2	0.04732	0.38244	-0.49695
FORMAL3	-0.09242	0.62983	-0.25133
FORMAL4	-0.14115	0.76966	-0.15877
FORMAL5	-0.19453	0.74561	-0.03180
FORMAL6	-0.33911	0.43558	-0.09088
FORMAL7	0.56021	-0.01415	0.12783
FORMAL8	0.68082	-0.29635	-0.06574
FORMAL9	0.58232	-0.31214	0.11539
FORMAL10	0.28774	-0.03179	0.69295
FORMAL11	0.40245	-0.02261	0.14289
FORMAL12	0.31042	-0.04850	0.55453
FORMAL13	0.71445	-0.15034	0.14850
FORMAL14	0.54809	-0.10185	-0.01801
FORMAL15	0.32510	-0.09416	0.28149

TRANSFORMATION MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3
FACTOR 1	0.69292	-0.59115	0.41281
FACTOR 2	0.72016	0.53956	-0.43617
FACTOR 3	0.03511	0.59952	0.79959

Fineman's (1975b) Job Climate Questionnaire

A factor analysis was undertaken on the above scale. Five factors were extracted. Factor 1 was concerned with progress or promotion in the organisation; Factor 2 was concerned with responsibility and autonomy; Factor 3 was concerned with organisational dynamics; Factor 4 was concerned with job challenge and Factor 5 was difficult to label exactly, however, it reflected future orientation, training and job feedback. The factor structure reflected those dimensions that would be expected, from Achievement motivation theory to activate need for achievement.

However, the factor structure was complex, with a number of items being designated as impure since they loaded significantly on a number of factors. These were items JCL 2, 7, 10, 12, 15, 19, 20, 21, 25. Organisational environments are, in themselves, complex. It should, therefore, be expected there must be some empirical overlap. The questionnaire appears to be satisfactory from theoretical and pragmatic perspectives.

Fineman's (1975a) need for achievement questionnaire - the WPQ

A factor analysis of the scale was undertaken and the hypothesised factor structure of the scale was supported, nine sub-variables were extracted. All items were pure. Factor 1 was labelled task activity or task importance, Factor 2 was labelled interpersonal relations, Factor 3,4 and6 labelled individual responsibility, Factor 5 was labelled incentives (the scale labelled suggested by Fineman indicated achievement satisfaction), Factor 7 was labelled risk taking, Factor 8 was difficult to label and Factor 9 was concerned with achievement satisfaction. Taken over-all the factor structure is not as clear cut as that suggested by Fineman. A number of items loaded on factors that, in general, did not reflect the factor composition. Furthermore, a reliability analysis was performed on the scale. Reliability coefficients of .62 (pilot study) and .59 (main study) were obtained. These

differed, to some extent, from the .68 reported by Fineman. The foregoing would suggest that the scale requires some modification.

VARIMAX ROTATED FACTOR MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
JCL1	0.05868	0.72144	0.21226	0.01005	0.11260
JCL2	0.20962	0.30648	0.04117	0.07441	0.17867
JCL3	0.40617	0.48062	0.29233	0.13787	0.15886
JCL4	0.06991	0.37092	-0.07529	0.05369	0.24549
JCL5	0.10926	0.51176	0.06737	0.10367	0.10881
JCL6	-0.04952	0.11065	0.05901	0.00910	0.43641
JCL7	0.15177	0.10716	0.45106	0.36292	-0.06040
JCL8	0.08746	0.10742	0.63220	0.04069	-0.02177
JCL9	0.15296	0.51909	0.16017	0.11191	-0.04358
JCL10	0.29127	0.46966	0.22352	0.39354	0.17999
JCL11	0.70117	0.17053	0.20296	0.17082	-0.00909
JCL12	0.39453	0.37248	0.26087	0.49972	0.02934
JCL13	0.32464	0.20055	0.04324	0.11047	0.31037
JCL14	0.35481	0.24328	0.20016	0.06372	0.11410
JCL15	0.47113	0.42517	0.12603	0.22003	0.15746
JCL16	0.61439	0.16743	0.23729	0.18299	-0.01160
JCL17	0.21907	0.01518	0.02358	0.17154	0.32371
JCL18	0.17292	0.03990	0.43456	0.11230	0.19476
JCL19	0.27643	0.15359	0.40072	0.01727	0.33573
JCL20	0.49183	0.24300	0.41207	0.17992	0.02731
JCL21	0.58249	0.25370	0.34558	0.25604	0.19436
JCL22	0.19366	0.42924	0.06752	0.14456	0.00997
JCL23	0.24934	0.23191	0.15536	0.56120	0.16072
JCL24	0.25410	0.14037	0.56274	0.14560	0.15716
JCL25	0.33234	0.23351	0.49955	0.48775	0.15161

TRANSFORMATION MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
FACTOR 1	0.57046	0.51179	0.47529	0.37377	0.21689
FACTOR 2	-0.19382	0.77805	-0.56969	-0.12210	0.13271
FACTOR 3	-0.67168	0.18307	0.59971	-0.18868	0.34611
FACTOR 4	0.27505	-0.26710	-0.19588	-0.29912	0.85156
FACTOR 5	-0.33155	-0.16689	-0.22699	0.84871	0.30065

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
JCL1	0.58176	1	7.46793	73.1	73.1
JCL2	0.17702	2	1.12149	11.0	84.0
JCL3	0.52568	3	0.66004	6.5	90.5
JCL4	0.21177	4	0.52879	5.2	95.7
JCL5	0.30109	5	0.44245	4.3	100.0
JCL6	0.20872				
JCL7	0.37334				
JCL8	0.42094				
JCL9	0.33291				
JCL10	0.54064				
JCL11	0.59115				
JCL12	0.61303				
JCL13	0.25601				
JCL14	0.24222				
JCL15	0.49182				
JCL16	0.49546				
JCL17	0.23234				
JCL18	0.27080				
JCL19	0.37357				
JCL20	0.50387				
JCL21	0.62642				
JCL22	0.24728				
JCL23	0.43062				
JCL24	0.44684				
JCL25	0.67542				

VARIMAX ROTATED FACTOR MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
NACM1	0.15575	0.01229	0.36140	-0.07070	-0.02568	0.10211	0.09016	0.13626	-0.03135
NACM2	0.00519	-0.05706	-0.01284	-0.06111	0.61209	0.04948	0.07218	-0.00561	0.14464
NACM3	0.64578	-0.08065	0.06651	-0.07200	-0.04937	-0.03371	-0.07078	0.15621	0.15855
NACM4	0.15291	0.15828	0.14886	-0.00589	0.28007	0.43416	-0.04958	0.04668	0.05428
NACM5	0.24322	-0.11064	0.08766	0.06837	0.27408	-0.06365	0.05611	0.07667	0.41272
NACM6	-0.01654	0.00759	0.15665	-0.04975	0.03998	-0.05490	0.48302	0.00003	0.03466
NACM7	0.78295	0.03299	0.05243	0.06856	0.06819	0.15413	-0.02422	0.01438	0.00612
NACM8	0.00711	0.13577	0.06463	0.03619	-0.06455	0.11412	0.01293	0.47325	0.03391
NACM9	-0.00434	0.02373	0.30851	0.10340	0.02934	-0.15009	0.05150	-0.00412	0.00622
NACM10	0.06825	0.04930	0.14297	-0.06780	0.08840	0.12434	0.10054	-0.00557	0.45757
NACM11	0.04011	-0.02969	0.05437	0.34572	-0.16759	-0.05668	0.04549	0.01585	0.18078
NACM12	0.06157	0.09409	0.26023	-0.09284	0.04315	0.29382	0.34893	0.02492	0.08134
NACM13	0.09579	0.04015	-0.03013	0.08319	0.08485	0.00450	0.09436	0.30759	-0.00870
NACM14	0.05667	0.07380	-0.14856	0.10261	-0.07984	0.41463	0.06056	0.15041	0.02546
NACM15	-0.01458	0.06969	0.51297	0.09948	-0.05775	-0.00205	-0.06717	-0.04167	0.15544
NACM16	0.00290	-0.01021	-0.02342	0.04268	0.04019	0.03951	0.29822	0.05804	0.04636
NACM17	-0.06626	-0.11979	0.38965	-0.02343	0.08704	0.05898	0.12567	-0.03296	0.06242
NACM18	-0.01514	0.72753	-0.03649	0.02170	0.08545	0.00696	-0.07998	0.17642	-0.01156
NACM19	0.13043	0.23221	0.09152	0.27257	-0.08187	0.04281	-0.04483	0.18351	-0.09167
NACM20	-0.05684	0.25950	0.04418	-0.00264	-0.10069	0.16305	0.19769	-0.10091	-0.01297
NACM21	0.02926	0.00741	-0.00001	0.62665	0.04290	0.04578	-0.04850	0.00367	-0.11328
NACM22	0.11099	0.38933	-0.03067	-0.01615	-0.12732	0.20484	0.12156	0.23394	0.06510
NACM23	-0.00405	0.01022	0.14103	-0.05910	0.16394	-0.07934	0.12068	0.00897	0.01256
NACM24	0.67254	0.09681	-0.09698	0.13696	0.01715	0.04633	0.07250	0.02258	0.04840

TRANSFORMATION MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9
FACTOR 1	0.79620	0.24088	0.20127	0.11490	0.13123	0.29476	0.12987	0.27336	0.24213
FACTOR 2	-0.04199	-0.46956	0.48478	-0.32007	0.39702	-0.06926	0.27594	-0.29861	0.36723
FACTOR 3	-0.52656	0.56632	0.34127	-0.08136	0.03818	0.33310	0.33649	0.22055	0.06688
FACTOR 4	-0.04178	-0.15179	0.58061	0.63444	-0.41016	-0.25425	0.03497	0.03322	-0.01576
FACTOR 5	-0.21533	0.00890	-0.16892	0.57492	0.69781	-0.06876	-0.19535	0.15648	0.20041
FACTOR 6	-0.04807	-0.41984	-0.37033	0.25064	-0.08493	0.29977	0.69985	0.15431	-0.10385
FACTOR 7	0.09747	0.29658	-0.15954	-0.08966	0.05464	-0.79268	0.45656	0.15213	0.07134
FACTOR 8	0.16114	0.25260	0.10273	0.18620	0.29060	0.04368	0.22553	-0.64325	-0.56032
FACTOR 9	0.03376	-0.22273	0.26310	-0.19788	0.27181	-0.08877	-0.07292	0.56856	-0.65826

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT. OF VAR.	CUM PCT
NACM1	0.19878	1	2.03717	28.6	28.6
NACM2	0.41027	2	1.20313	16.9	45.4
NACM3	0.49190	3	1.14068	16.0	61.4
NACM4	0.35837	4	0.75063	10.5	72.0
NACM5	0.34234	5	0.55386	7.8	79.7
NACM6	0.26591	6	0.47036	6.6	86.3
NACM7	0.65144	7	0.35999	5.0	91.4
NACM8	0.26648	8	0.32990	4.6	96.0
NACM9	0.13255	9	0.28590	4.0	100.0
NACM10	0.27488				
NACM11	0.18458				
NACM12	0.30616				
NACM13	0.12943				
NACM14	0.26161				
NACM15	0.32583				
NACM16	0.10637				
NACM17	0.20292				
NACM18	0.57672				
NACM19	0.19929				
NACM20	0.15869				
NACM21	0.41397				
NACM22	0.29623				
NACM23	0.07148				
NACM24	0.50041				

Snizek's (1972) modifications to Hall's (1968, 1969) professionalism scale

A factor analysis of the scale was undertaken and six factors were extracted. Factors 1 to 5 were labelled in accordance with those suggested by Hall and Snizek. Factor 6 was an additional factor extracted in the present study only. The factor names are,

Factor 1 Belief in Professional Autonomy
Factor 2 Belief in Public Service
Factor 3 Belief in Vocation
Factor 4 Belief in Self Regulation
Factor 5 Belief in Professional Association as a Source of Major Reference
Factor 6 refers to reference group orientation and a sense of idealism

On closer inspection Factors 5 and 6 are tapping two distinct aspects of reference group activity. Factor 5 is specifically tapping systematic reading of the professional journals and attending professional meetings at the local level. It is tapping aspects of Continued Professional Education or CPD. Factor 6 is specifically dealing with the professional association as reference group. Items 20 and 23 are dealing with the professional association as a source of reference. Item 22 is dealing with a sense of idealism. It could be suggested, therefore, that the professional associations are important as a source of reference in maintaining a sense of idealism ie. group identity.

The present analysis would indicate two important points concerning professionalism. First, reference group activity may differ depending on the group sampled. Hall and Snizek's data when factor analysed produced only five dimensions. The present study may indicate that, for quantity surveyors, there is a distinction between maintaining current knowledge through reading articles and the use of the professional association as a potential source of knowledge. Second, the study suggests that professionalism is a highly complex phenomenon that differs from group to group. The analysis has revealed that

in general, the structure of the modified scale is supported. However, there are divergences in the factor structure of reference group orientation and item 15 is impure since it significantly loads on two factors.

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
PRCFES1	0.73138	1	3.88275	39.1	39.1
PRCFES2	0.81560	2	1.84273	18.5	57.6
PRCFES3	0.84232	3	1.53552	15.5	73.1
PRCFES4	0.32731	4	1.32597	13.3	86.4
PRCFES5	0.23218	5	0.82473	8.3	94.7
PRCFES6	0.21537	6	0.52694	5.3	100.0
PRCFES7	0.28229				
PRCFES8	0.64954				
PRCFES9	0.20182				
PRCFES10	0.27148				
PRCFES11	0.41194				
PRCFES12	0.35961				
PRCFES13	0.83421				
PRCFES14	0.35795				
PRCFES15	0.43320				
PRCFES16	0.15750				
PRCFES17	0.46876				
PRCFES18	0.35719				
PRCFES19	0.26093				
PRCFES20	0.30159				
PRCFES21	0.41676				
PRCFES22	0.34862				
PRCFES23	0.45161				
PRCFES24	0.81663				
PRCFES25	0.84850				

VARIMAX ROTATED FACTOR MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
PRCFES1	0.04253	0.10169	0.12837	0.03573	0.82025	0.16931
PRCFES2	0.05324	0.69903	0.14337	0.00790	-0.01124	0.08591
PRCFES3	0.78901	0.08345	-0.05473	-0.03837	0.15546	0.06349
PRCFES4	0.00569	0.14829	0.21237	0.05465	0.41148	0.29634
PRCFES5	0.07179	0.07430	0.42136	0.16834	0.06039	0.10946
PRCFES6	0.44123	0.00359	0.10045	0.02106	-0.08961	-0.04591
PRCFES7	0.09254	-0.01095	-0.00103	0.50860	0.01704	0.12352
PRCFES8	0.79122	0.04908	0.01094	-0.03094	0.11689	-0.01398
PRCFES9	0.05134	0.37333	0.19975	0.03314	0.03213	-0.13332
PRCFES10	0.08205	0.06057	0.04320	0.50666	0.04942	0.00827
PRCFES11	0.08799	0.18373	0.60103	0.08061	0.04867	-0.03898
PRCFES12	0.58628	-0.01196	-0.00999	0.08321	-0.03997	0.08440
PRCFES13	0.03661	0.71095	0.13226	0.01954	0.09265	0.03165
PRCFES14	0.01135	0.05924	0.16780	0.55693	0.03365	-0.12188
PRCFES15	0.08258	0.32065	0.55222	0.11261	0.07538	0.01366
PRCFES16	0.06067	0.35454	0.19401	0.15350	-0.00286	0.08593
PRCFES17	0.00338	0.18202	0.62108	0.02554	0.10454	0.19569
PRCFES18	0.52253	0.03766	0.18526	0.21633	0.03874	0.01050
PRCFES19	0.01128	-0.00619	0.24751	0.43545	0.00981	0.09080
PRCFES20	0.02153	0.05113	0.30210	0.10125	0.23761	0.37488
PRCFES21	-0.01259	0.62538	0.07527	-0.00440	0.09181	0.10669
PRCFES22	-0.01734	0.25745	0.40956	0.06291	0.00843	0.33268
PRCFES23	0.06330	0.05473	0.10818	0.11445	0.18660	0.62047
PRCFES24	-0.02656	0.05994	0.00776	0.69992	0.10689	0.10467
PRCFES25	0.04416	0.01955	0.02067	0.13033	0.72634	0.03814

TRANSFORMATION MATRIX

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
FACTOR 1	0.28830	0.51774	0.55901	0.35967	0.36097	0.28813
FACTOR 2	0.93465	-0.25523	-0.23102	0.03617	0.01203	-0.08713
FACTOR 3	-0.19858	-0.58804	-0.09846	0.65824	0.37524	0.17561
FACTOR 4	0.02375	0.30888	0.16822	0.58768	-0.74693	-0.25265
FACTOR 5	-0.05837	0.55399	-0.69587	0.31245	0.22042	-0.24339
FACTOR 6	0.02879	0.09674	-0.33454	0.01253	-0.34966	0.86918

Laforge and Suczek's Interpersonal Check List

A factor analysis of the scale was undertaken and two factors extracted. Factor 1 reflected the octants responsible - over-generous, cooperative - over-conventional, docile - dependant and modest - self-effacing. These reflect the affiliative activities or interpersonal relations. Factor 1, therefore, is concerned with Affiliation.

Factor 2 reflects octants managerial - autocratic, sceptical - distrustful, blunt - aggressive and competitive - exploitive activities. It is reflecting dominant forms of interpersonal behaviour and is concerned with Dominance.

The present results confirm that the ICL reflects two major empirical dimensions of Dominance and Affiliation.

FILE QS (CREATION DATE = 07/07/82) STUDY

- - - - - - - - - - - - PEARSON CORRELATION COEFFICIENTS - - - - - - - - - - - -

	MANAUTO	RESPOGEN	COOPOCON	DOCDEP	MODSEFF	SKEPDIST	ELTAGG	COMPEX
MANAUTO	1.0000	0.4693	0.4118	0.3871	0.1632	0.2642	0.6401	0.6295
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=*****	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001
RESPOGEN	0.4693	1.0000	0.6898	0.5772	0.4944	0.2383	0.3392	0.3942
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=*****	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001
COOPOCON	0.4118	0.6898	1.0000	0.5695	0.5033	0.2218	0.2782	0.3589
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=0.001	P=*****	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001
DOCDEP	0.3871	0.5772	0.5695	1.0000	0.5809	0.2459	0.2854	0.3036
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=0.001	P=0.001	P=*****	P=0.001	P=0.001	P=0.001	P=0.001
MODSEFF	0.1632	0.4944	0.5033	0.5809	1.0000	0.4115	0.2243	0.2214
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=0.001	P=0.001	P=0.001	P=*****	P=0.001	P=0.001	P=0.001
SKEPDIST	0.2642	0.2383	0.2218	0.2459	0.4115	1.0000	0.5124	0.4811
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=*****	P=0.001	P=0.001
ELTAGG	0.6401	0.3392	0.2782	0.2854	0.2243	0.5124	1.0000	0.6304
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=*****	P=0.001
COMPEX	0.6295	0.3942	0.3589	0.3036	0.2214	0.4811	0.6304	1.0000
	(434)	(434)	(434)	(434)	(434)	(434)	(434)	(434)
	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=0.001	P=*****

(COEFFICIENT / (CASES) / SIGNIFICANCE) (A VALUE OF 99.0000 IS PRINTED IF A COEFFICIENT CANNOT BE COMPUTED)

FILE OSTUCYL (CREATION DATE = 01/10/84)

FACTOR MATRIX USING PRINCIPAL FACTOR WITH ITERATIONS

	FACTOR 1	FACTOR 2
PARAUTO	0.68056	0.29356
RESPCGEN	0.73684	-0.30358
CCCPCCON	0.76216	-0.36009
CCCCEP	0.67165	-0.36142
PCCSEFF	0.57309	-0.36772
SKEPCIST	0.49565	0.15021
ELTAGG	0.68770	0.50743
CCMPEX	0.69744	0.41041

VARIABLE	COMMUNALITY	FACTOR	EIGENVALUE	PCT OF VAR	CUM PCT
PARAUTH	0.74935	1	3.48800	77.1	77.1
RESPCGEN	0.63510	2	1.03589	22.9	100.0
CCCPCCON	0.82263				
CCCCEP	0.58201				
PCCSEFF	0.46365				
SKEPCIST	0.28587				
ELTAGG	0.73041				
CCMPEX	0.65466				

FILE OSTUCYL (CREATION DATE = 01/10/84)

VARIMAX ROTATED FACTOR MATRIX

	FACTOR 1	FACTOR 2	
PARAUTO	0.27960	0.86642	MANAGERIAL - AUTOCRATIC
RESPCGEN	0.73832	0.29998	RESPONSIBLE - OVER GENEROUS
CCCPCCON	0.75313	0.23543	CO-OPERATIVE - OVER CONVENTIONAL
CCCCEP	0.73251	0.21317	DOCILE - DEPENDANT
PCCSEFF	0.66649	0.13946	MODEST - SELF EFFACING
SKEPCIST	0.22346	0.48592	SKEPTICAL - DISTRUSTFUL
ELTAGG	0.13478	0.84355	BLUNT - AGGRESSIVE
CCMPEX	0.26973	0.78158	COMPETITIVE - EXPLOITIVE

TRANSFORMATION MATRIX

	FACTOR 1	FACTOR 2
FACTOR 1	0.71320	0.70096
FACTOR 2	-0.70056	0.71329

APPENDIX 9

Description of Geographical Regions

GEOGRAPHICAL REGIONS

LONDON

Greater London Council Area

SOUTH EAST

Bedfordshire, Essex, Hertfordshire, Kent, Surrey, Sussex, Berkshire, Buckinghamshire, Hampshire, Isle of Wight, Oxfordshire

EAST ANGLIA

Cambridgeshire, Norfolk, Suffolk

NORTH

Cleveland, Cumbria, Durham, Northumberland, Tyne and Wear

NORTH WEST

Cheshire, Greater Manchester, Lancashire, Merseyside

MIDLANDS

Derbyshire, Hereford and Worcester, Leicestershire, Lincolnshire, Northamptonshire, Nottinghamshire, Salop, Staffordshire, Warwickshire, West Midlands

SOUTH WEST

Avon, Cornwall, Devon, Dorset, Gloucestershire, Somerset, Wiltshire

YORKSHIRE AND HUMBERSIDE

Humberside, North Yorkshire, South Yorkshire, West Yorkshire

SCOTLAND

WALES

NORTHERN IRELAND

Source: Quantity and Building Surveyors.
Survey of Salaries and Rewards in the U.K.
Building Business Unit. May 1980

APPENDIX 10

OPCS 1980 Guidelines

Social Class Guidelines (OPCS 1980 Guidelines)

Social class classifications for the sample were arrived at in the following manner:-

1. Father's occupational title was given a three digit occupational code.
   Example:quantity surveyor, occupatiònal code 083.
2. With reference to Appendix G (OPCS 1980) the occupational code was classidied into employment status relationships, ie. Self-employed, Managers, Foremen or Employees.
   Example: occupational code 083 reclassified as employment status 031.2.
3. With reference to Appendix B.1 (OPCS 1980) the employment status is reclassified into Social Class.
   Example: employment status 031.2 reclassified as Social Class 2(Intermediate occupations).